

RAMONA GRASSLANDS PRESERVE RESOURCE MANAGEMENT PLAN SAN DIEGO COUNTY



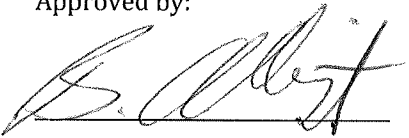
February 2013



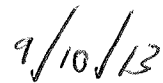
**RAMONA GRASSLANDS PRESERVE
RESOURCE MANAGEMENT PLAN
SAN DIEGO COUNTY**

FEBRUARY 2013

Approved by:

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County of San Diego
Department of Parks and Recreation

A handwritten date "9/10/13" in black ink, written over a horizontal line.

Date

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Appendix A	Baseline Biological Survey Report for the Ramona Grasslands Preserve, County of San Diego
Appendix B	Cultural Resources Phase I Survey and Inventory, Ramona Grasslands Preserve, San Diego County, California (Confidential – Not Included with this Report)
Appendix C	Ramona Grasslands Preserve Vegetation Management Plan
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Acronyms and Abbreviations

°F	Fahrenheit
AMSL	above mean sea level
APN	Assessor's Parcel Number
APNs	Assessor's Parcel Numbers
ASMDs	Area-Specific Management Directives
BMPs	Best Management Practices
CAL FIRE	California Department of Forestry and Fire Protection
Cal-IPC	California Invasive Plant Council
Cal-IPC	California Invasive Plant Council
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNPS	California Native Plant Society
DPR	County Department of Parks and Recreation
DPW	County Department of Public Works
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
Framework RMP	Draft Framework Resource Management Plan
GPR	ground penetrating radar
HCP	Habitat Conservation Plan
HEM	Habitat Evaluation Model
I-15	Interstate 15
MLD	Most Likely Descendent
MOU	Memorandum of Understanding
MOU	Memorandum of Understanding
NAHC	Native American Heritage Commission
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Planning
NE	northeast
NW	northwest
PAMA	pre-approved mitigation areas
PRC	Public Resources Code
Preserve	Ramona Grasslands Preserve
RDM	Residual Dry Matter
RDM	residual dry matter
RMP	Resource Management Plan
RMWD	Ramona Municipal Water District
SANDAG	San Diego Association of Governments
SDGE	San Diego Gas and Electric

SE	southeast
SHPO	State Historic Preservation Office
SKR	Stephens' kangaroo rat
SR-67	State Route 67
SR-78	State Route 78
SW	southwest
TNC	Nature Conservancy
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMP	Vegetation Management Plan
WRI	Western Research Institute

The Ramona Grasslands Preserve (Preserve) consists of approximately 3,490 acres located in the Santa Maria Valley west of the community of Ramona in San Diego County, California (Figure 1). The Preserve was acquired in sections starting in 2003 for inclusion in the Draft North County Plan preserve system. The Preserve consists of very high to high value natural communities including a large portion of Santa Maria Creek. Currently, the Preserve is not open to the public; however, there are existing undesignated trails on site and public access is planned for the Preserve.

1.1 Purpose of Management Plan

This Resource Management Plan (RMP) has been prepared as a guidance document to manage and preserve the biological and cultural resources within the Preserve, and to provide Area-Specific Management Directives (ASMDs) pursuant to the requirements of the Draft North County Plan and Draft Framework Resource Management Plan (Framework RMP) (County 2009). More specifically, this RMP will:

- a) guide the management of vegetation communities/habitats, plant and animal species, cultural resources, and programs described herein to protect and, where appropriate, enhance biological and cultural values;
- b) serve as a guide for appropriate public uses of the property;
- c) provide a descriptive inventory of the vegetation communities/habitats, plant and animal species, and the archaeological and/or historical resources that occur on this property;
- d) establish the baseline conditions from which adaptive management will be determined and success will be measured; and
- e) provide an overview of the operation and maintenance requirements to implement management goals.

Chapter 5 of this RMP includes ASMDs for the Ramona Grasslands Preserve.

It is recognized that the County-owned land is only a small portion of the overall MSCP preserve system. The County does ensure management of other lands that are encumbered by conservation easements as mitigation for discretionary projects, through requiring land developers to prepare RMPs. The County will spearhead a larger coordinated effort to ensure that other conserved lands in the area that make up the MSCP preserve are also being monitored and managed consistent with this RMP and the overall goals of the MSCP Plan and the North County Plan once it is finalized.

1.1.1 MSCP Background

The Draft North County Plan is a comprehensive habitat conservation planning program and one of three subregional habitat planning efforts in San Diego County that contribute to preservation of regional biodiversity through coordination with other habitat conservation planning efforts throughout southern California.

The Draft North County Plan is being prepared as a Multiple Species Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act (FESA), the Natural Community Conservation Planning (NCCP) Program pursuant to the California NCCP Act of 1991, and the California Endangered Species Act (CESA). The Preserve is owned and operated by the County and is included within the Draft North County Plan preserve system.

1.1.2 Draft North County Plan

The County is preparing the Draft North County Plan as a habitat conservation planning effort that will expand the County's MSCP into the northwestern unincorporated areas of the County. The Draft North County Plan will help conserve habitat that benefits numerous species, including the 63 covered species. The Draft North County Plan will also enhance the region's quality of life by providing the residents of San Diego County with passive recreational and educational opportunities as well as a functioning natural environment in which to live. The Draft North County Plan area encompasses approximately 489 square miles in and around the unincorporated communities of Bonsall, De Luz, Fallbrook, Harmony Grove, Lilac, Pala, Pauma Valley, Rainbow, Ramona, Rincon Springs, Twin Oaks Valley, and Valley Center.

The Draft North County Plan goal is to preserve 106,780 acres of natural lands in a network of preserves. The North County Plan preserve system will be assembled by a variety of means, beginning with the conservation and management of existing public lands.

1.1.3 Draft North County Plan Framework RMP and ASMDs

The Draft North County Plan Framework RMP is currently in draft form. The Draft Framework RMP provides general direction for all preserve management and biological monitoring within the preserve system.

The Draft Framework RMP also incorporates a requirement for the subsequent preparation and implementation of ASMDs to address management and monitoring issues at the site-specific level. ASMDs will be developed in accordance with the Draft Framework RMP using the information gained during the biological and cultural resources baseline surveys. Chapter 5 of this RMP includes ASMDs for the Preserve. The ASMDs will be revised once the North County Plan, including the Framework RMP, is finalized.

1.2 Implementation

1.2.1 Management Approach

A key concept of the MSCP is the use of "Adaptive Management Techniques" directed at the conservation and recovery of individual species. This term, as defined in the Draft North County Plan, is "a decision process that promotes flexible decision making, which can be adjusted in the face of uncertainties as outcomes from management actions and other events are better understood. Careful monitoring of these outcomes advances scientific understanding and allows for the adjustment of policies and/or operations as part of an interactive learning process. Adaptive management also recognized the importance of natural variability in contributing to ecological resilience and productivity." Adaptive management is particularly useful where there is uncertainty

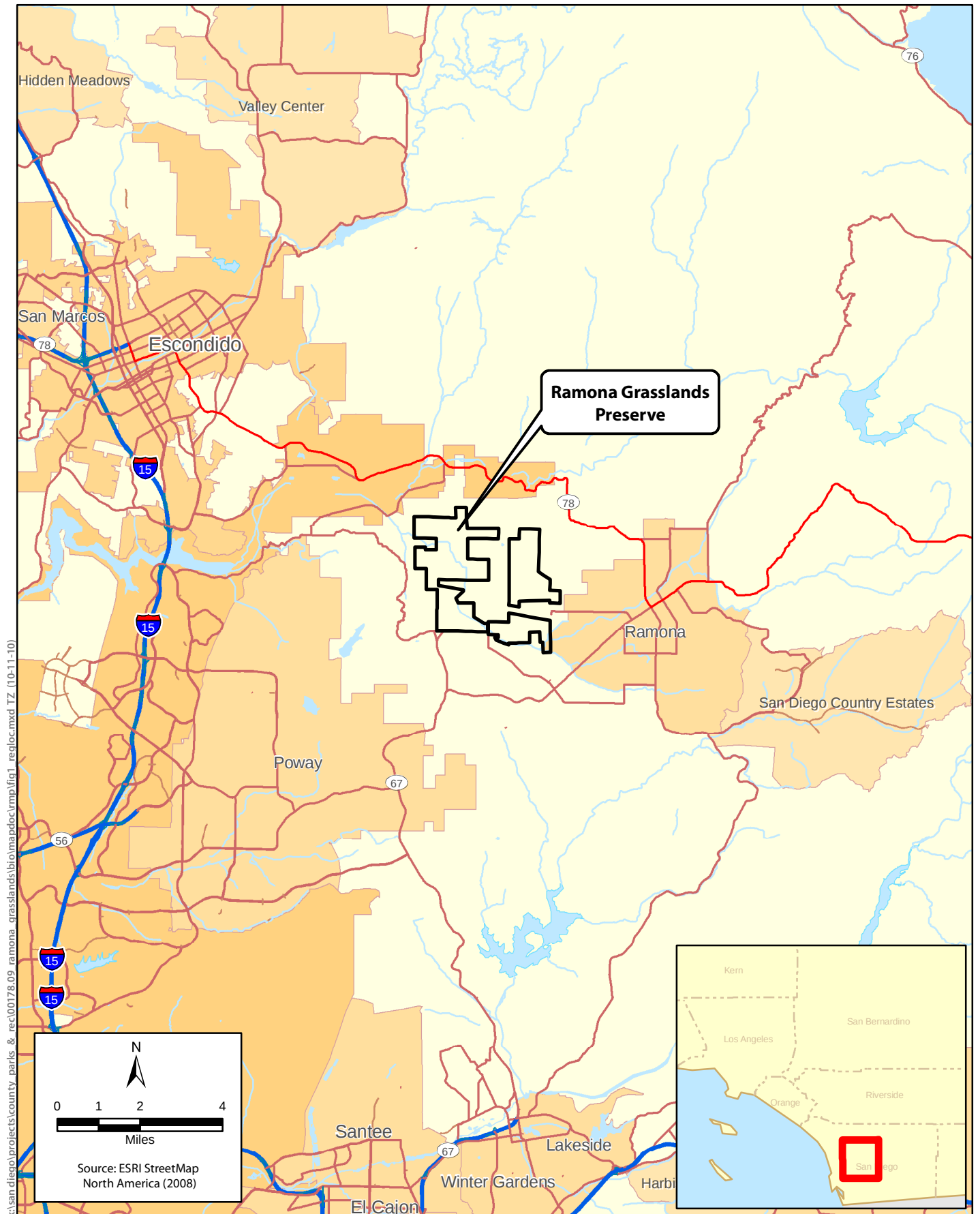


Figure 1
Regional Location
Ramona Grasslands

regarding the efficacy of certain management measures and/or the needs of target species. Adaptive management and an associated monitoring program are designed to inform land managers of the status and trends of covered species, natural communities, and landscapes in a manner that provides data to allow informed management actions and decisions.

It is anticipated that the recommended management actions provided in this RMP will be dynamic in nature. Applying adaptive management, the effectiveness and appropriateness of recommended management actions would be determined through review of management goal and objective achievement so that changes can be made to management directives and implementation measures as needed. Adaptive management techniques depend upon the specific issues impacting the resources. Therefore, the techniques herein may be subject to change or revisions when applied. Additionally, the monitoring protocols/requirements for MSCP covered species and habitats will be revisited periodically by participants of the MSCP and are subject to change based on adoption of updated protocols. It is anticipated that this RMP will be revised once every 5 years, as needed. The RMP may be revised on a shorter time scale if there is a change in circumstance, for example, acquisition of additional Preserve land.

1.2.2 Responsible Parties/Designation of Land Manager

The County is responsible for management, biological monitoring, and meeting the conditions of MSCP coverage on County-owned lands conserved as part of the MSCP preserve system within the County's jurisdiction, which includes County-owned land. The Preserve is operated, administered, and managed by the County Department of Parks and Recreation (DPR), and the DPR District Park Manager assigned to the Preserve is the land manager. DPR (District Park Manager and staff of the Resources Management Division) will also be responsible for the implementation and enforcement of the RMP.

The Preserve is located in the management district of one supervising park ranger, three park rangers, three seasonals, and two volunteers. Perimeter patrolling of the Preserve occurs on a daily basis and interior patrolling occurs once a week. It is expected that many of the implementation measures, especially the maintenance tasks, will be carried out by the rangers who are most familiar with the site and currently patrol the Preserve.

1.2.3 Regulatory Context

The County's park rangers manage County parks and enforce preserve rules and regulations pursuant to San Diego County Code of Regulatory Ordinances Title 4, Division 1, Chapter 1 County Parks and Recreation. In addition, per County Code of Regulatory Ordinance Sections 41.111, 41.112, and 41.113, all wildlife, plant, historical artifacts, and geologic features are protected and are not to be damaged or removed. Any person who violates any provision of these sections is guilty of a misdemeanor as provided in Sections 11.116, 11.117, and 11.118 of this Code, punishable by fines up to \$2,500 a day for each day the person violates these sections. The park rangers will contact law enforcement who will cite the offending individual. In addition, if an individual does not comply with signs within a facility and ignores park ranger instructions, the individual could potentially be charged with a misdemeanor by law enforcement.

1.2.4 Limitations and Constraints

The County allocates general funds for costs to implement to MSCP, including funding for land management, stewardship, and adaptive management and monitoring. The County Board of Supervisors approved approximately \$4.7 million of General Fund allocations for implementation of the MSCP for fiscal years 2009-10 and 2010-11 (County 2010a). Base funding for land management costs will be maintained for baseline preserves owned by the County and will be increased as lands are acquired in the future.

The County estimates that current funding levels will provide for adaptive management and monitoring on all currently owned lands. Future regional funding sources are also anticipated to fund adaptive management and monitoring activities throughout the preserve system.

2.1 Legal Description

The 3,490-acre Preserve is located within the western portion of the Valle de Pamo (or Santa Maria Valley, T 13S, R 1E and R 1W), part of the historic Santa María Rancho, 6 miles east of Interstate 15 (I-15), approximately 1.5 miles south of State Route 78 (SR-78), approximately 1.4 miles north of State Route 67 (SR-67), and approximately 2.0 miles west of downtown Ramona, California (Figures 1 and 2). The Assessor's Parcel Numbers (APNs) of existing conserved properties are provided in Table 2-1.

Table 2-1. APNs and Acquisition History of Conserved Properties within the Preserve

Property	APNs	Acquisition Date
Cagney Ranch (southeast portion)	2820100600	August 2006
	2810101200	
	2810101400	
	2820100200	
	2771210200	
	2820103500	
	2820100100	
	2820100500	
	2820100400	
	2820100300	
	2771211300	
Hardy Ranch (southeast corner)	2820103400	November 2004
	2820100800	
Oak Country I Estates (southwest portion)	2771115300	August 2008
	2770503100	
	2771211400	
Oak Country II Estates (southwest portion)	2761110500	September 2008
	2770503000	
	2771115200	
Davis-Eagle Ranch (northeast portion)	2790100400	August 2008
	2810101700	
	2800100400	
	2810101000	
	2770502500	
	2770502600	
	2800100100	
	2815210400	
	2790100500	
	2810101600	
	2810100900	

Property	APNs	Acquisition Date
Gildred Family Ranch (northwest portion and one parcel in northeast portion)	3560404300	September 2008
	2815211000	
	2760410600	
	2760500900	
	2760500700	
	2760502700	
	2760502800	
	2760502600	
	2760500800	
	2760500500	
	2760500400	
	2760600400	
	2761100200	
	2761100900	
	2761101000	
	2761010300	
	2761110600	
	2761110700	
	2761101100	
	2761101200	
	2761110200	
	2761110300	
	2761210100	
	2761212100	
	2761212200	
	2800100500	
Cumming Ranch (southeast of current Preserve boundary)	TBD	Conservation proposed by developer group as project mitigation
Montecito Properties (northeast of current Preserve boundary)	TBD	Conservation proposed by developer group as project mitigation

2.2 Geographical Setting

The Preserve is within the Santa Maria Valley, which consists of a broad basin surrounded by gentle hills and rocky rises ranging in elevation from approximately 410 meters (1,350 feet) above mean sea level (AMSL) along the valley floor to over 518 meters (1,700 feet) AMSL in the rocky hills of the northern sections of the Preserve. The Preserve comprises four properties referred to as the: northwest (NW) portion, southwest (SW) portion, northeast (NE) portion, and southeast (SE) portion of the Preserve (Figure 2). The NW portion of the Preserve is west of Rangeland Road and is generally north of the Ramona Municipal Water District (RMWD) property. It is characterized by rocky hills bisected by Bandy Canyon, through which the Santa Maria Creek flows. The SW portion of the Preserve is generally south and west of the RMWD property and consists of rolling hills with rocky outcrops and areas of oak woodlands that transition into the lower topography grasslands to the south. The southern boundary is Highland Valley Road. The Santa Maria Creek channel flows through this area and also follows the southern boundary. The NE portion of the Preserve is located east of Rangeland Road and north of the Ramona Airport. It is characterized by rocky chaparral-

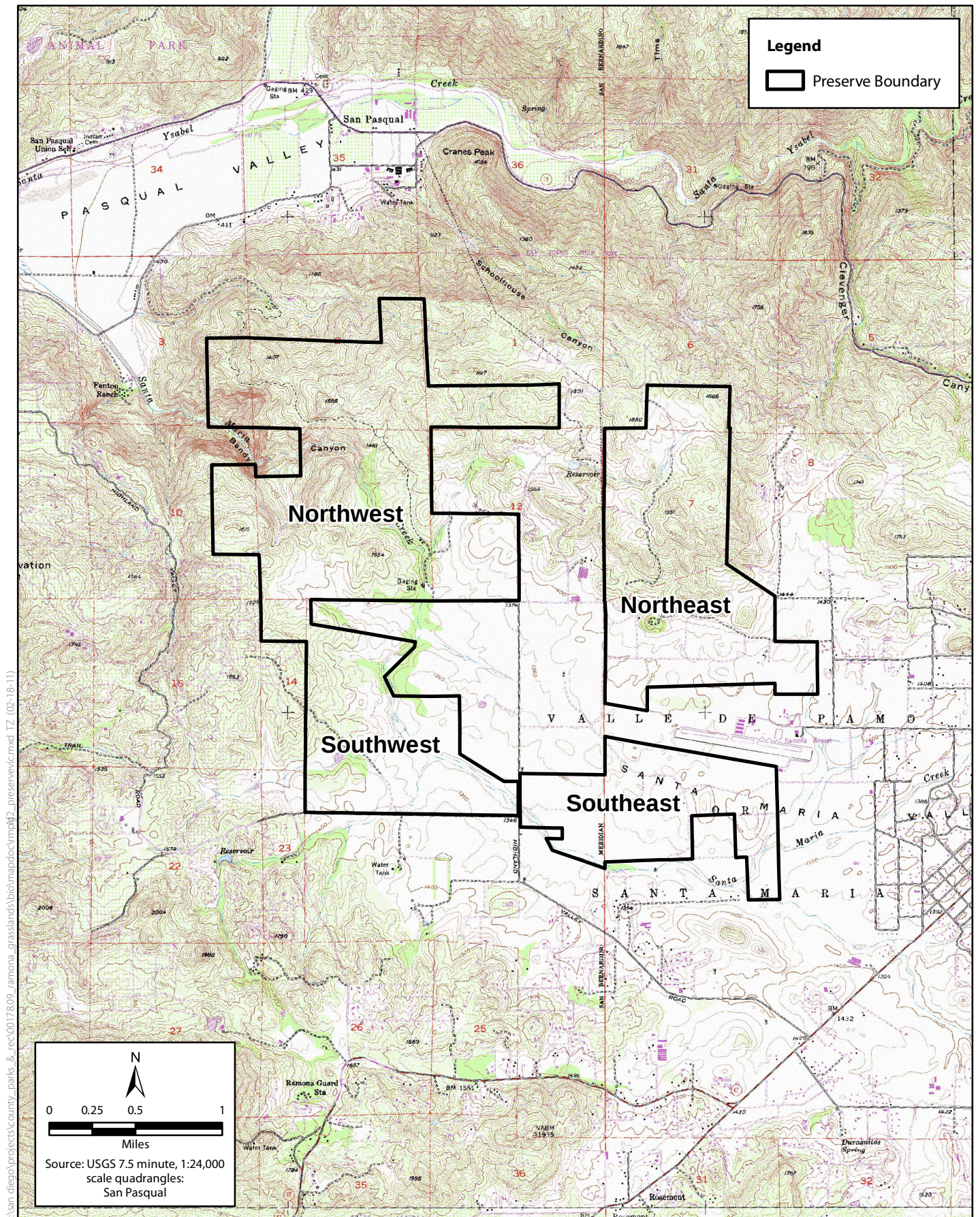


Figure 2
Preserve Vicinity
Ramona Grasslands

covered hillsides in the north and lower topography grasslands in the south. The SE portion of the Preserve is east of Rangeland Road and south of the Ramona Airport. This area consists of low, rolling hills supporting grasslands and rocky outcrops.

2.2.1 Site Access

Because of constraints associated with conservation easements, improved staging areas with parking are allowed only in the SW and NE portions of the Preserve. Marked access points are allowed on the NW and SE portions of the Preserve. Staging areas and other access points are summarized below for each portion of the Preserve (see Figure 3).

Southwest Portion

- Access will occur from Highland Valley Road, at the location of the staging area for the Oak Country II trails.

Northwest Portion

- Primary access occurs from an unpaved road (public access easement) that lies between the NW portion of the Preserve and RMWD property. This unpaved road intersects with the proposed pathway along Rangeland Road.
- Secondary access occurs via a proposed new trail segment that connects with the Oak Country II trails in the SW portion; visitors to the Preserve would be able to reach this access point by using the Oak Country II staging area.

Northeast Portion

- Primary access is proposed on the eastern edge, which can be reached via an unpaved (and unnamed) road extending west from Montecito Way. This access point will require construction of a staging area (approximately 3 acres).
- Secondary access will occur from Rangeland Road via a public access easement through RMWD property.
 - This access route utilizes a portion of an existing unpaved road, but will also require new trail construction where the easement is adjacent to the Ramona Airport property.
 - A marker or other sign will identify the access point where it meets Rangeland Road.

Southeast Portion

- The southeastern-most corner allows for connection to a future trail system associated with the proposed Cumming Ranch Development adjacent to the Preserve. If the Cumming Ranch Development, including trails, moves forward, there would be an approximately 0.3-mile trail connector segment within the SE portion of the Preserve. This segment is included in the Cumming Ranch Development Draft Environmental Impact Report and is not discussed in this report.
- Existing legal access to this portion of the Preserve is via a gated dirt road north of where Santa Maria Creek crosses Rangeland Road; no public access to the Preserve is proposed via this existing access point.

2.2.2 MSCP Context

The majority of the Preserve is located in the North County Planning area (Figure 4). A section of the NW portion of the Preserve is located within the boundary of the South County Plan, specifically within the Metro-Lakeside-Jamul segment (Figure 4). However, the entire Preserve will be managed under the Draft North County Plan. It should be noted that the Draft North County Plan has not been approved by the Wildlife Agencies (California Department of Fish and Game [CDFG] and U.S. Fish and Wildlife Service [USFWS]) and is currently in draft form. A key feature of the Draft North County Plan is the focus of proposed conservation areas that are identified in the plan as pre-approved mitigation areas (PAMA). As proposed, 80% of the natural habitats within the Draft North County Plan planning area are proposed for conservation. Within the PAMAs, the plan identifies planning segments including core areas, special areas, and linkages between core areas.

The Preserve is identified within the Draft North County Plan as containing a core habitat area and a linkage area that connects to habitat east of SR-67. The northern portion that lies within the South County Plan is also identified as containing a core habitat area. The Preserve also connects to San Pasqual Valley to the north and tenuously to the southeast across SR-67 (where it becomes a linkage) toward Barnett Ranch and the Iron Mountain preserve areas complex.

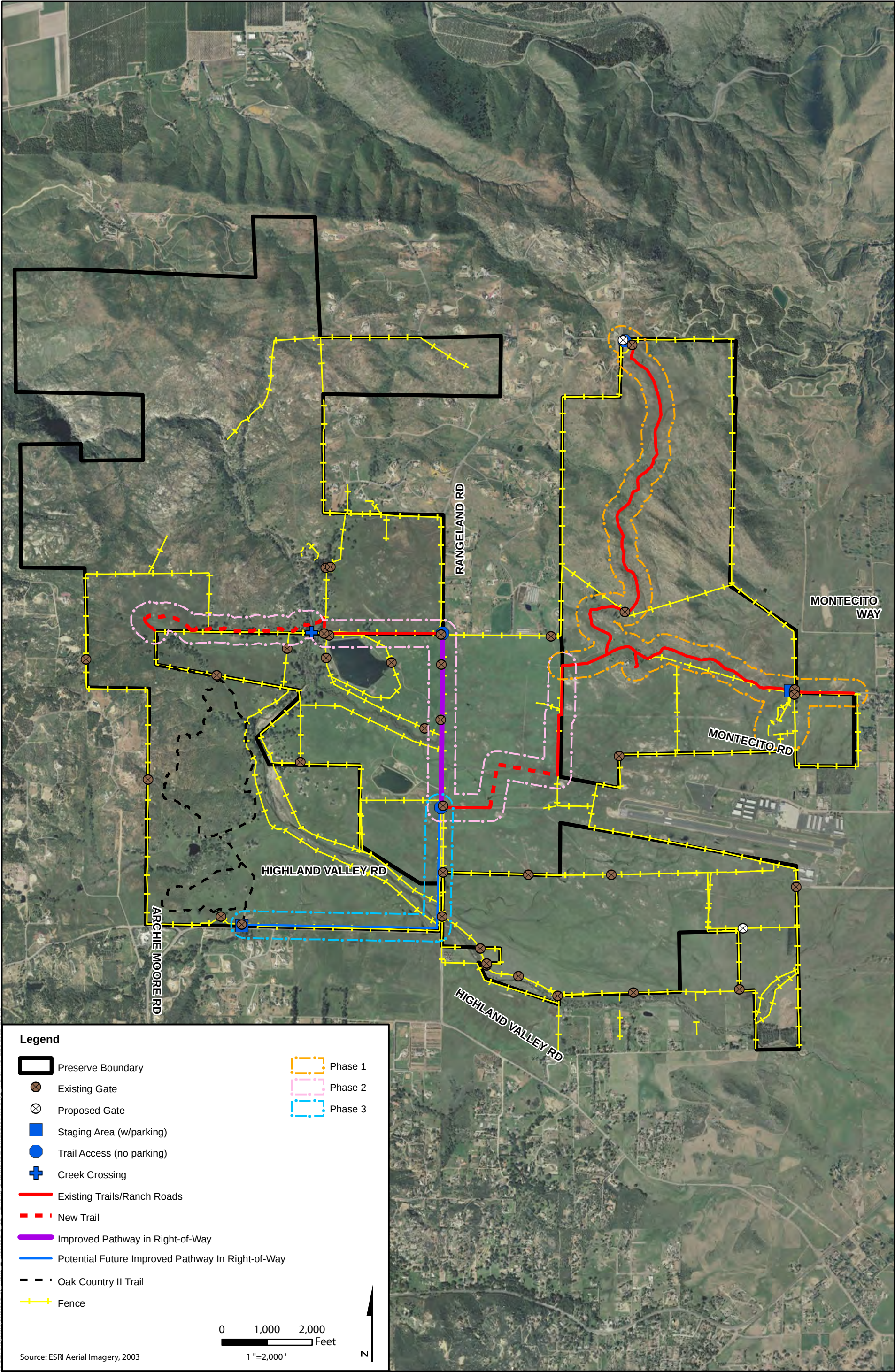
2.2.3 County of San Diego General Plan Context

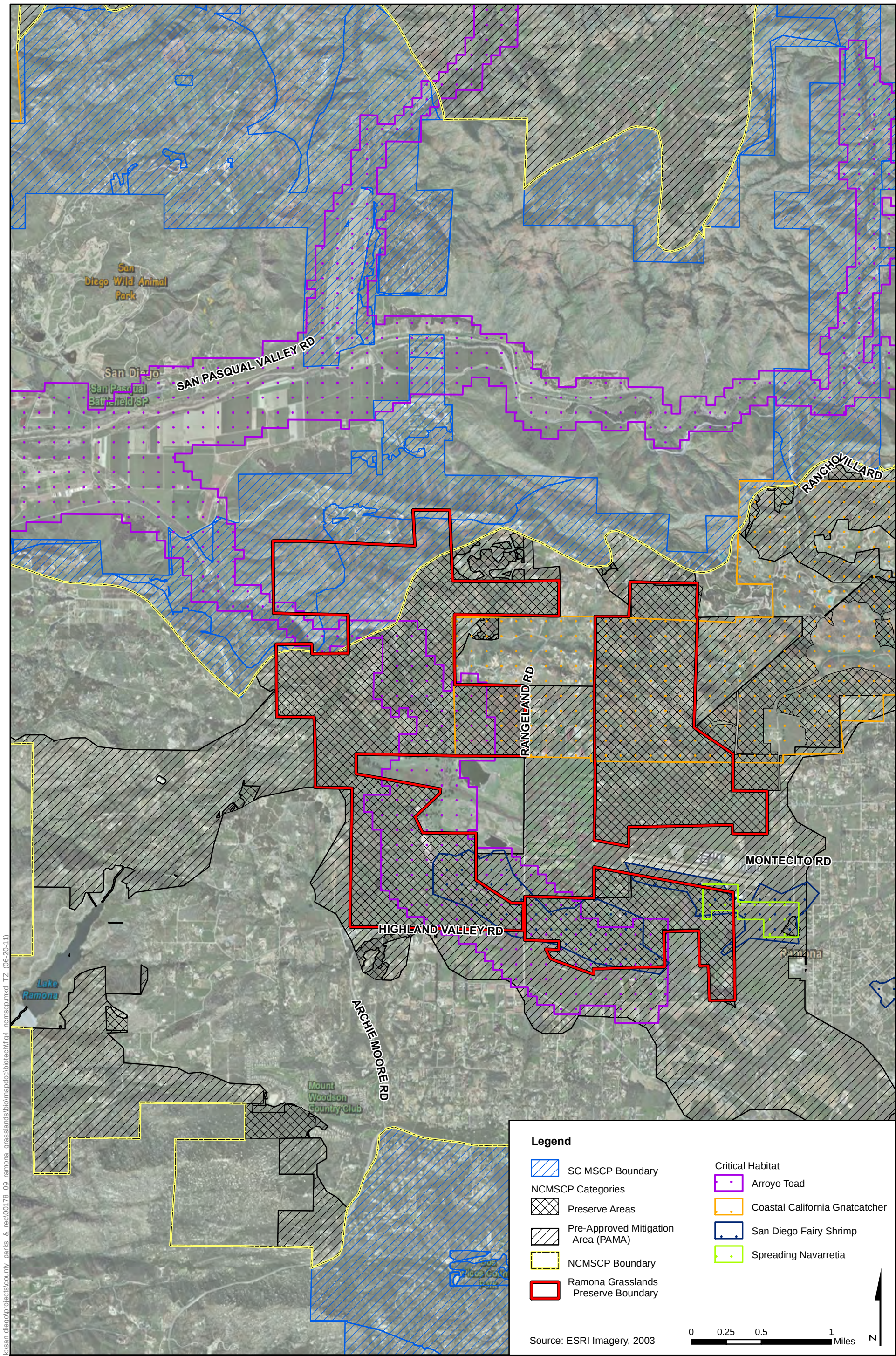
County-specific goals and guidelines can be found in the San Diego County General Plan. Specifically, the Preserve is located within the Ramona Community Plan. The Ramona Community Plan provides goals and policies that are designed to fit the specific or unique circumstances existing within this community. Goals provided in this plan seek to preserve the present state of spaciousness and rural living within the Ramona Plan area, encourage the preservation and enhancement of unique natural features, and provide a wide variety of recreational activities and facilities that will meet the needs and enrich the lives of all Ramona residents. To this end, the Ramona Plan provides policies and recommendations that are meant to guide the allocation of County resources towards prescribed outcomes consistent with the goals.

2.3 Physical and Climatic Conditions

2.3.1 Geology and Soils

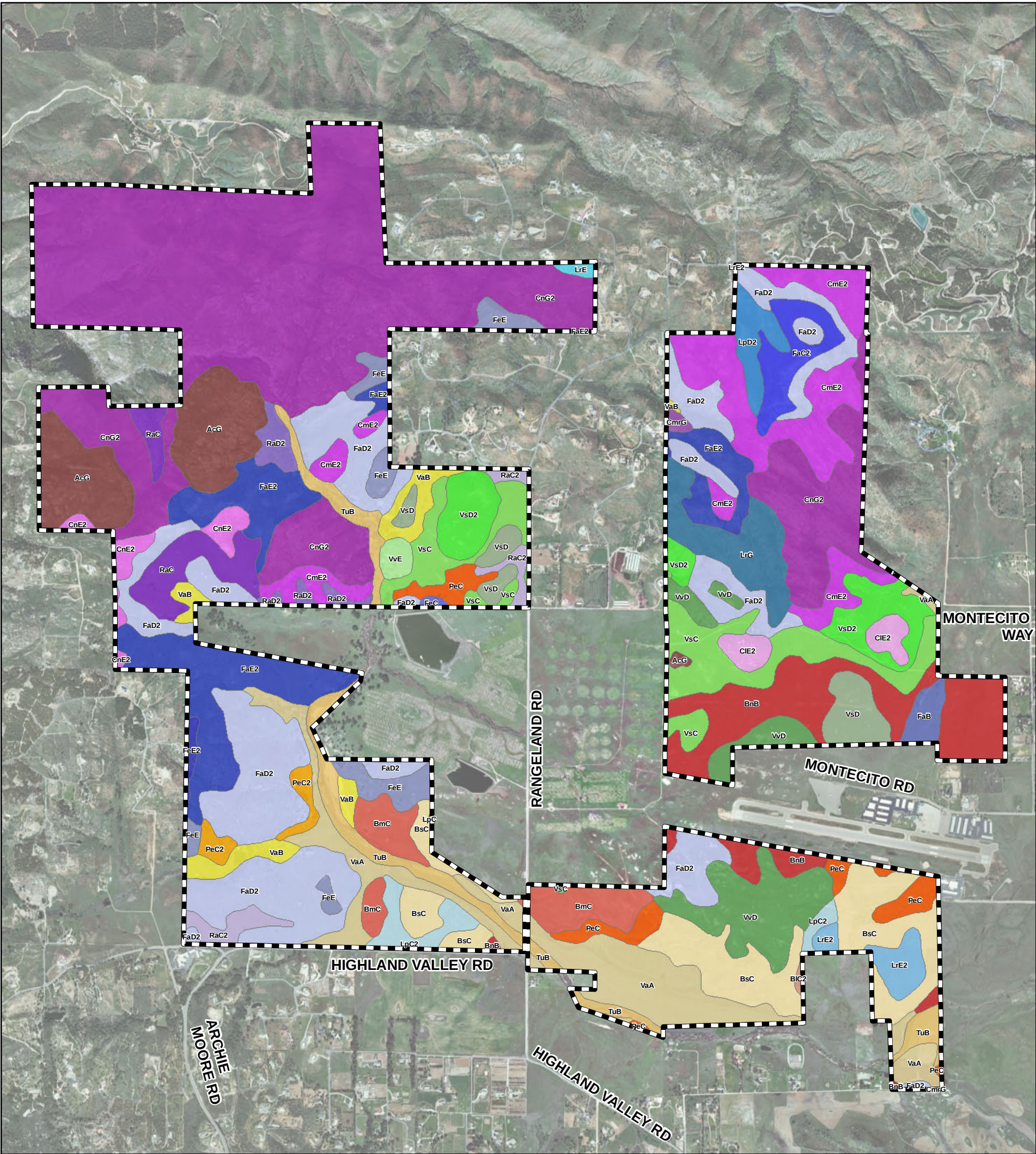
The Preserve falls within the Santa Maria Valley, which is located within the western zone of the Peninsular Ranges Batholith. Granodiorite outcrops from this uplifted structure occur across the grasslands of the Santa Maria Valley and dominate the hilltops, where relatively deep, well-drained soils of decomposed granodiorites slope away from them. Lower-lying areas tend to support heavier clay soils, with shallow or surface expression of clay hardpans, and these soils sometimes develop characteristic vernal pool/mima mound topography. Gabbro outcrops can also be found scattered throughout the grasslands and influence plant associations. Several general soil associations are represented within the Preserve: acid igneous, Bonsall, Bonsall-Fallbrook, Bonsanko, Cieneba, Cieneba-Fallbrook, Fallbrook, Las Posas, Placentia, Ramona, Tujunga, Visalia, and Vista (Figure 5) (USDA 1973). The characteristic features of these soil associations are described below.





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Figure 4
MSCP Designations and Conserved Lands
Ramona Grasslands



Preserve Boundary

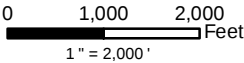
Soil Types

- AcG - Acid igneous rock land
- BIC2 - Bonsall sandy loam
- BmC - Bonsall sandy loam
- BnB - Bonsall-Fallbrook sandy loams
- BsC - Bosanko clay
- CIE2 - Cieneba coarse sandy loam
- CmE2 - Cieneba rocky coarse sandy loam
- CmrG - Cieneba very rocky coarse sandy loam
- CnE2 - Cieneba-Fallbrook rocky sandy loams
- CnG2 - Cieneba-Fallbrook rocky sandy loams
- FaB - Fallbrook sandy loam

- FaC2 - Fallbrook sandy loam
- FaD2 - Fallbrook sandy loam
- FaE2 - Fallbrook sandy loam
- FeC - Fallbrook rocky sandy loam
- FeE - Fallbrook rocky sandy loam
- FeE2 - Fallbrook rocky sandy loam
- LpC - Las Posas fine sandy loam
- LpC2 - Las Posas fine sandy loam
- LpD2 - Las Posas fine sandy loam
- LrE - Las Posas stony fine sandy loam
- LrE2 - Las Posas stony fine sandy loam
- LrG - Las Posas stony fine sandy loam
- PeC - Placentia sandy loam

- PeC2 - Placentia sandy loam
- RaC - Ramona sandy loam
- RaC2 - Ramona sandy loam
- RaD2 - Ramona sandy loam
- TuB - Tujunga sand
- VaA - Visalia sandy loam
- VaB - Visalia sandy loam
- VsC - Vista coarse sandy loam
- VsD - Vista coarse sandy loam
- VsD2 - Vista coarse sandy loam
- VvD - Vista rocky coarse sandy loam
- VvE - Vista rocky coarse sandy loam

Source: SanGIS Soils, 2002; ESRI Imagery, 2003



Acid Igneous Rock Land

This soil series (AcG) consists of rough broken terrain with topography that ranges from low hills to very steep mountains. Large boulders and rock outcrops cover 50 to 90% of the total area. The soil material is loam to loamy coarse sand in texture and is very shallow over decomposed granite or basic igneous rock. This soil type is mapped primarily on a large hill near the central section of the NW portion.

Bonsall Sandy Loam

This soil series (BmC) is characterized by moderately well-drained, shallow to moderately deep sandy loams that have a heavy clay loam subsoil with slopes from 2 to 15%. These soils are mapped in the lower elevation areas of the southern portions.

Bonsall-Fallbrook Sandy Loam

This soil series (BnB) is characterized as a complex of sandy loams with slopes from 2 to 50%. This series is a mixture of soils with about 50% Bonsall sandy loam and 45% Fallbrook sandy loam. These soils appear in undulating uplands, where the Bonsall soils occupy the swales and Fallbrook soils occupy the low mounds and ridges. This soil series is mapped in the southeastern corner of the SW portion, the southern section of the NE portion, and in the northern section of the SE portion.

Bosanko Clay

This soil series (BsC) is characterized as well-drained, moderately deep clays from materials derived from acid igneous rock with slopes from 2 to 30%. These soils are found on uplands that are undulating to hilly. This series is mapped on the SE portion as well as in the southeastern section of the SW portion.

Cieneba Rocky Course Sandy Loam

This soil series (CID2, CIE2, CmE2, CmrG) is characterized as coarse sandy and rocky sandy loams with slopes from 5 to 75%. They are typically described as excessively drained shallow soils that are weathered in place from granite outcrops found in the adjacent uplands. These soils are mapped primarily in the northern sections of the northern portions of the Preserve.

Cieneba-Fallbrook Rocky Sandy Loams

This soil series (CnE2, CnG2) is characterized as a soil complex with about 55% Cieneba coarse sandy loam and 40% Fallbrook sandy loam, with slopes of 9 to 65%. This soil is mapped on the northern portions of the Preserve.

Fallbrook Sandy Loam

This soil series (FaB, FaC2, FaD2, FaE2, FeC, FeE, FeE2) is characterized as sandy to rocky sandy loams with slopes from 2 to 30%. These soils are typically moderately deep and well drained, and are weathered in place from granodiorite. This soil is mapped in scattered patches throughout the Preserve.

Las Posas Loam

This soil series (LpC, LpC2, LpD2) is characterized as fine sandy loams and stony fine sandy loams with clay subsoil with 2 to 65% slopes. These soils are well-drained, moderately deep, and are formed from materials weathered from basic igneous rocks. This soil is mapped in scattered patches throughout the Preserve. Las Posas soils are considered mafic and are known to support sensitive plant populations within the County of San Diego. However, within the Preserve no special-status plant populations were observed on these soils.

Placentia Sandy Loam

This soil series (PeC, PeC2) is characterized as moderately well-drained sandy loams that have sandy clay subsoil, with 0 to 9% slopes. They are moderately well-drained soils made from granitic alluvium and are found on old alluvial fans. This soil is mapped in scattered patches throughout the Preserve.

Ramona Fine Sandy Loam

This soil series (RaB, RaC, RaD2) is characterized as well-drained, very deep sandy loams that have a sandy clay loam subsoil with slopes of 0 to 30%. They are formed from granitic alluvium and are found on terraces and alluvial fans. This soil is mapped in patches on the northern portions of the Preserve.

Tujunga Sand

This soil series (TuB) is characterized as deep, excessively drained sands derived from granitic alluvium with slopes of 0 to 5%. This soil is mapped along the Santa Maria Creek on the southern and NW portions of the Preserve.

Visalia Sandy Loam

This soil series (VaA, VaB) is characterized as sandy or coarse sandy loams with slopes from 0 to 15%. These are moderately well-drained soils derived from granitic alluvium and are typically found in alluvial flood plains and fans. This soil is mapped in areas of lower topography throughout the Preserve.

Vista Coarse Sandy Loam

This soil series (VsC, VsD, VsD2, VvD, VvE) is characterized as rocky coarse sandy loams with slopes of 5 to 65%. These are well-drained, moderately deep to deep soils derived from granodiorite or quartz diorites. Patches of this soil are mapped throughout the Preserve.

2.3.2 Climate

A semi-permanent, high-pressure cell located over the Pacific Ocean dominates San Diego climate. This cell drives the dominant onshore circulation, maintaining clear skies for much of the year. Summers at the Preserve are typically warm and dry, while winters are mild with occasional rain (NOAA 2010).

The Western Regional Climate Center, a collaborative project of the National Oceanic and Atmospheric Agency and the Desert Research Institute, maintains a climatic station at the Ramona Airport, the closest such station to the Preserve. Data collected at the station indicate that the area experiences a normal mean temperature of approximately 60 degrees Fahrenheit (°F), with a mean maximum temperature of 75.5°F and a mean minimum of 44.9°F. In a normal year, precipitation at the Preserve averages 12 inches and falls mostly in the winter and spring. Overall, December is the coldest month and August is the hottest, while June is the driest and February is the wettest month (Table 2-2).

Table 2-2. Mean Monthly Temperatures and Precipitation, April 1998–December 2008

Month	Mean Monthly Temperatures (Min to Max – °F)	Mean Monthly Total Precipitation (inches)
January	49.9 (34.2–65.5)	2.01
February	50.7 (36.8–64.5)	3.40
March	52.9 (38.9–67.0)	1.42
April	55.6 (41.4–69.7)	1.20
May	61.5 (47.7–75.3)	0.48
June	66.7 (51.3–82.2)	0.03
July	72.9 (56.8–89.0)	0.08
August	73.4 (57.1–89.8)	0.07
September	69.8 (53.2–86.4)	0.10
October	63.0 (47.2–78.8)	0.78
November	55.7 (39.8–71.7)	1.04
December	49.7 (33.9–65.5)	1.52
Yearly	60.2 (44.9–75.5)	12.13

Source: WRCC 2008

2.3.3 Hydrology

The Preserve occupies a significant portion of the Santa Maria Creek subbasin of the San Dieguito River watershed (Figure 6). The Santa Maria Creek and its tributaries drain from the mountains east of Ramona, across the Preserve, and through Bandy Canyon to its confluence with Santa Ysabel Creek. Below this confluence, the San Dieguito River flows into Hodges Reservoir. The Santa Maria Creek exhibits intermittent flow in response to winter rainfall, although surface flow in the creek may persist late in the summer during heavy rainfall years. Water is also perennial at the far western end of the valley. The majority of the other drainages shown in Figure 6 have been previously identified as potential stream courses (blue line) by the U.S. Geological Survey (USGS) on the San Pasqual quadrangle (USGS 1983). All of the drainages mapped, with the exception of Santa Maria Creek, are ephemeral and have a defined bed and bank.

There is one perennial pond located in the southwest corner of the Preserve. This approximately 1.0-acre pond consists of an earthen dam with a culverted overflow, occurs within a tributary to the Santa Maria Creek, and is surrounded by coast live oak riparian forest. Two other larger perennial ponds occur west of Rangeland Road on property maintained by the RMWD that is adjacent to the Preserve to the north, south, and west.

2.3.4 Fire History

The landscape within the Preserve consists of oak woodlands and chaparral surrounding nonnative grasslands. The hills surrounding the Preserve have burned repeatedly (approximately every decade in the past 50 years [SanGIS 2009]), and increasing fire ignitions correlated with human population growth may conceivably increase the extent of the grasslands over time via type-conversion of shrub habitats (Keeley and Fotheringham 2001). The 2007 Witch Fire burned a substantial portion of the Preserve (Figure 7), and, prior to this, smaller portions of the Preserve were burned during the Clevenger and Rangeland Fires in 1975 and an unnamed fire in 1970. All of the largest fires, including the Witch Fire, burned in September and October during Santa Ana wind events.

2.4 Land Use

2.4.1 Onsite Land Use

The Preserve consists of mostly native habitat preserved in open space. Most of the Preserve has been ranched historically and there is an existing network of dirt roads and trails. The approximately 14.8 miles of dirt roads are well maintained and are used primarily for maintenance and care of livestock that graze on portions of the Preserve. Grazing is confined to lowland areas within the Preserve.

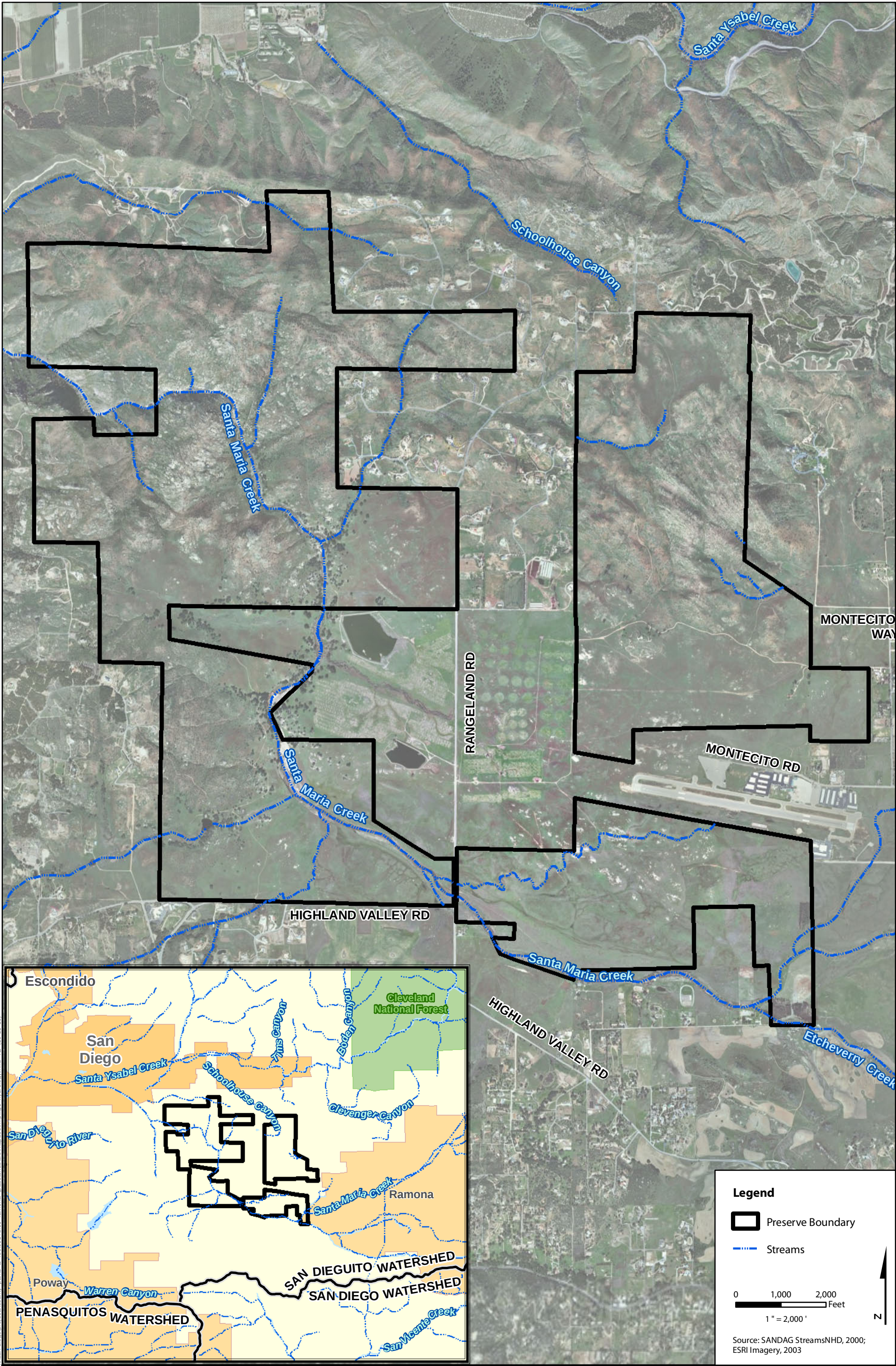
The majority of the grasslands within the Preserve have been used for cattle grazing for many years, with limited improvements such as perimeter fencing and wells installed over the years. Grazing consists of year-round cattle grazing, without formalized rotation or rest periods. Stocking rates are established on an annual basis, primarily based on weather and forage conditions.

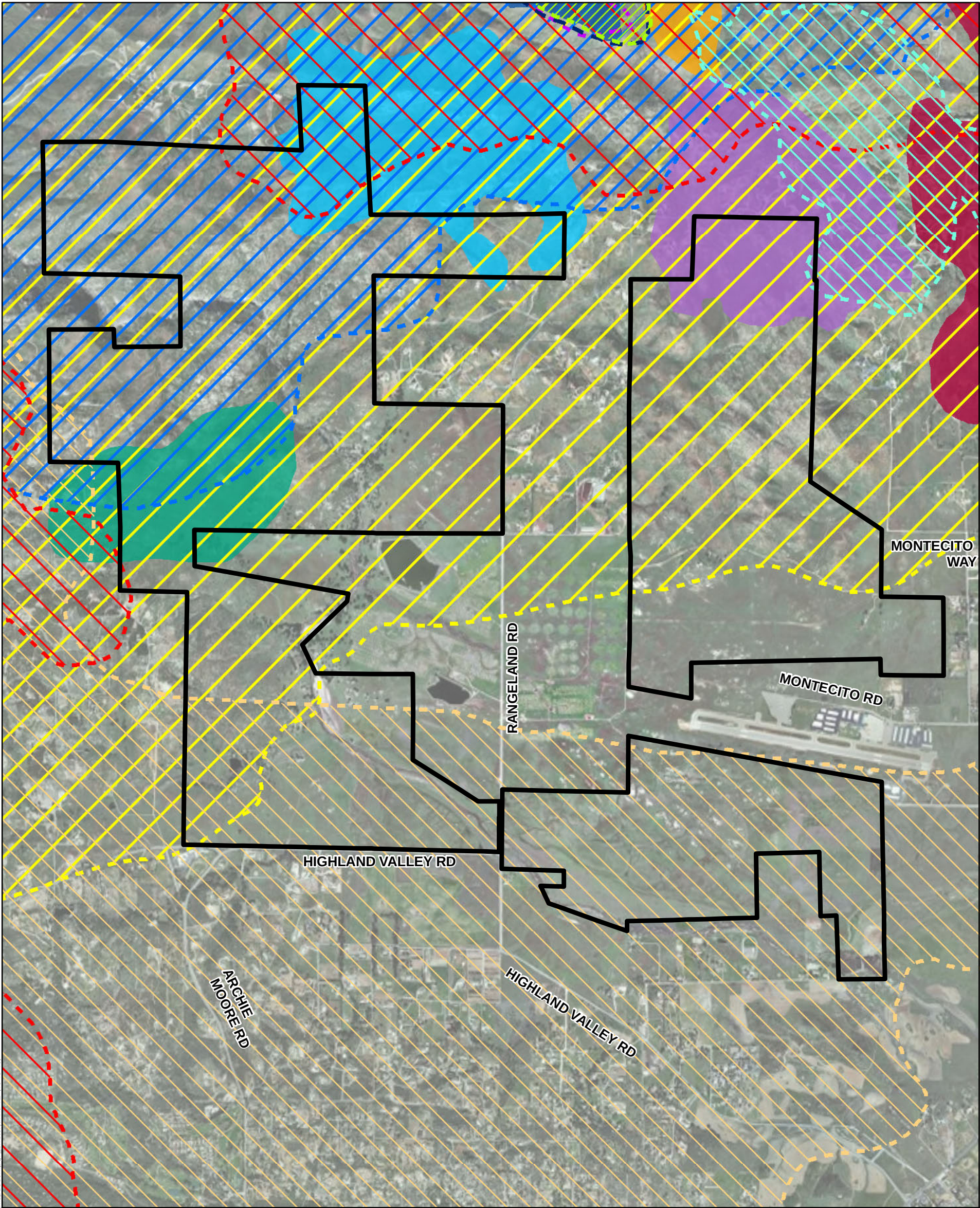
There are several structures and foundations remaining in the Preserve. Notable structures in the NE portion include the “House on the Hill” (a vacant structure at higher elevation) and a second house (also vacant) with associated barn and rodeo corral. In the NW portion of the Preserve, there is a small dam along a portion of Santa Maria Creek, with an associated water level station.

In the SW portion of the Preserve, a “figure 8” loop trail (Oak Country II Trail) is under construction, which utilizes a combination of existing unpaved trails and new trails. Improvements include a staging area with parking for cars and equestrian trailers. This Oak Country II Trail project was approved in 2009, construction began in 2010, and the trails and staging area were opened to the public in 2011.

San Diego Gas and Electric (SDGE) utilizes the Preserve roads to access their distribution poles, which occur along the dirt road west of Rangeland Road along the southern boundary of the NW portion and parallel to Santa Maria Creek on the NW portion, along the northeastern boundary of the NW portion near the northern terminus of Rangeland Road, and that cross the NE portion from Rangeland Road east to Montecito Way.

The existing main east–west dirt road in the NE portion of the Preserve has been identified as an emergency evacuation route for Ramona residents.

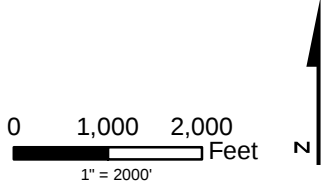




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- | | | | |
|------------------------|--------------------------|-----------------|---------------|
| Preserve Boundary | Clevenger, 1985 | Rangeland, 1975 | Unnamed, 1967 |
| Fires | Clevenger, 1988 | Unnamed, 1911 | Unnamed, 1970 |
| Clevenger Canyon, 1955 | Clevenger, 1993 | Unnamed, 1913 | Unnamed, 2007 |
| Clevenger, 1975 | Highland Valley Rd, 1987 | Unnamed, 1919 | Witch, 2007 |

Source: SANGIS Fire_Burn_History, 2007; ESRI Imagery, 2003



2.4.2 Adjacent Properties

The RMWD utilizes land west of Rangeland Road for storage and infiltration of treated sewage effluent. Treated effluent is piped from a treatment facility to two storage reservoirs that exist on their property. Treated effluent is disposed via infiltration within a series of spray fields on their property and on ranchland east of Rangeland Road. The irrigated spray fields are an important year-round source of green forage for cattle grazing.

The RMWD property is located west of Rangeland Road and is bordered by the Preserve to the north, south, and west. RMWD spray fields are located east of Rangeland Road and are bordered by the Preserve to the east and south. The Ramona Airport is located east of Rangeland Road and borders the Preserve to the north and south. Low-density residential uses are located between the NW and NE portions of the Preserve (accessible by Rangeland Road), adjacent to the southern boundary of the SE portion, and along much of the Preserve's western and northern boundaries. Other areas around the periphery of the Preserve are used for dry farming, and small citrus and avocado orchards. Two residential communities are planned adjacent to and east of the Preserve. Both of these planned communities propose residential development and include open space areas that are proposed to be conserved as project mitigation and may be managed by the DPR and/or donated or sold to the County. Montecito Ranch was approved by the Board of Supervisors in 2010 and includes an active recreation area (neighborhood park), historic park, staging area, and open space and trails that connect with the NE portion of the Preserve. Cumming Ranch is proposed to include open space and trails that connect to the SE portion of the Preserve.

The Ramona Airport lies between the NE and SE portions of the Preserve. The California Department of Forestry and Fire Protection (CAL FIRE) has maintained the Ramona Air Attack Base at the airport since 1958. In 2002 the County extended the 4,000-foot runway an additional 1,000 feet to the west to accommodate larger fire-fighting aircraft. This extension, along with associated airport upgrades (e.g., sewer lines, taxiway, control tower), removed habitat occupied by Stephens' kangaroo rat (SKR), adversely affected vernal pools, and filled U.S. Army Corps of Engineers (USACE) and CDFG jurisdictional wetlands and waters. As mitigation for these impacts, 62.5 acres of airport property were conserved (west and north of the extended runway in the western half of the airport property), 20.2 acres supporting vernal pools were conserved and added to the southeast portion of the Preserve, and 10 acres were acquired in the southeast portion of the Preserve to create 1.34 acres of wetlands (County of San Diego 2005a). Habitat management plans for Stephens' kangaroo rat (FAA 2002) and vernal pools (FAA 2003) were prepared to govern long-term management and monitoring of these target resources on the mitigation sites. A Wetland Management Plan (Mooney Jones & Stokes 2005) was prepared to govern long-term management and monitoring of target resources on the wetland mitigation parcel. Management of resources on the airport property will be performed by the County Department of Public Works (DPW); however, a 2-acre vernal pool area will be managed by DPR. Long-term management of the resources in the Preserve will be performed by DPR. Long-term management of the vernal pool mitigation parcel within the Preserve began in 2007; the long-term management of the wetland mitigation parcel within the Preserve and the 2-acre vernal pool mitigation area on the Ramona Airport property began in 2012.

The Ramona Airport contains land that is proposed to be modified as vernal pool restoration as mitigation for impacts associated with the proposed Ramona Library Project (ICF Jones & Stokes 2009). The *Conceptual Vernal Pool Mitigation Plan* proposes to create vernal pools and enhance a portion of the watershed within the Airport property.

2.4.3 Easements, Deed Restrictions, Mitigation Properties, Biological and Open Space Easements, and Conserved Lands

Multiple easements are present within the Preserve including utility and public access easements. Properties within the Preserve that were acquired using federal and state grant funds include deed restrictions. In addition, conservation measures associated with the Oak Country II Trails Project and DPW mitigation properties located within the Preserve include long-term maintenance and management measures. The easements, deed restrictions, or mitigation properties on the Preserve are described below and shown on Figure 8b. In addition, conservation easements and deed restrictions are on file with DPR.

San Diego Gas and Electric

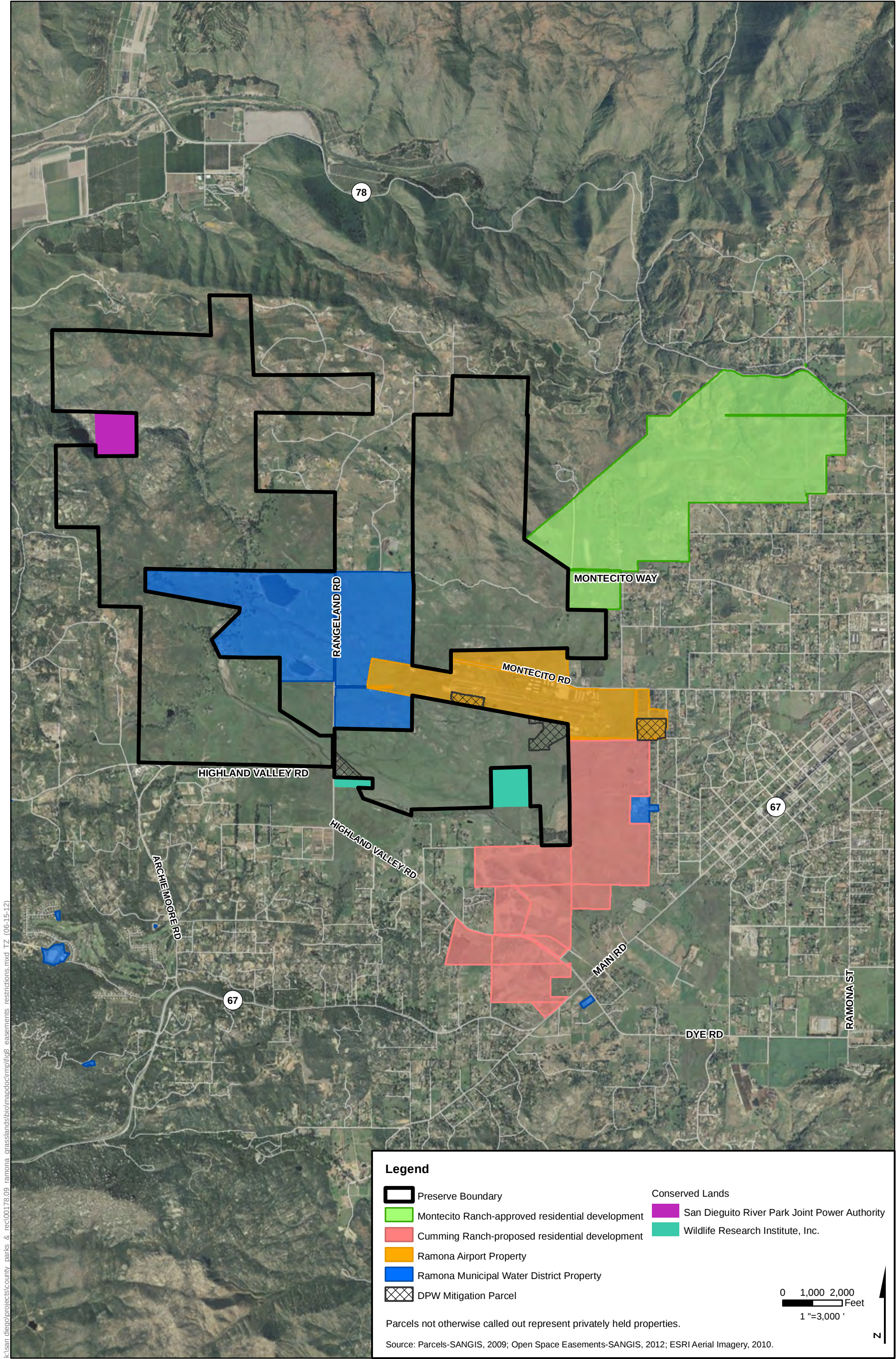
SDGE has distribution easements to access and maintain their distribution poles and lines that occur along the southern side of Highland Valley Road, along the eastern side of Rangeland road, along the dirt road west of Rangeland Road north of the RMWD property; adjacent to a dirt road that exists east and parallel to Santa Maria Creek north of the RMWD Property; along the northeastern boundary near the northern terminus of Rangeland Road; and that cross the NE portion from Rangeland Road east to Montecito Way with a section that is adjacent to Montecito Road on the Preserve north of the Ramona Airport. SDGE conducts operation and maintenance activities for their facilities consistent with the SDGE Subregional Natural Community Conservation Planning (NCCP) (SDGE 1995). The SDGE NCCP was approved by the wildlife agencies and is compatible with this RMP.

Public Access Easements

Existing public access easements also occur within and or immediately adjacent to the Preserve and allow possible access to some of the Preserve (Figure 8b). Access to the NW portion of the Preserve from Rangeland Road is allowed along the unpaved road (public road easement) that runs west from Rangeland Road along the northern boundary of the RMWD property, and extends as far west as Old Survey Road 97 (the main dirt road that runs southeast to northwest through the NW portion of the Preserve). The second public access easement allows access to the NE portion of the Preserve from Rangeland Road along an existing road on RMWD property (near the western boundary of the Ramona Airport property). The easement continues around the northwest corner of the Ramona Airport property and then follows north along the boundary between RMWD property and the NE portion of the Preserve, where it provides access to an existing ranch road within the NE portion. There currently is no ranch road or trail where the easement is adjacent to the Ramona Airport property. The grant of access easement to the County stipulates that, for public use, the County shall construct a fence along the edge of the easement area and post signs to deter the public from entering RMWD property.

California Department of Water Resources Flood Protection Corridor Program

A portion of the Santa Maria Creek in the SW portion of the Preserve is a dedicated flood easement and is part of the Flood Protection Corridor Program and is subject to the terms of the "Reservation



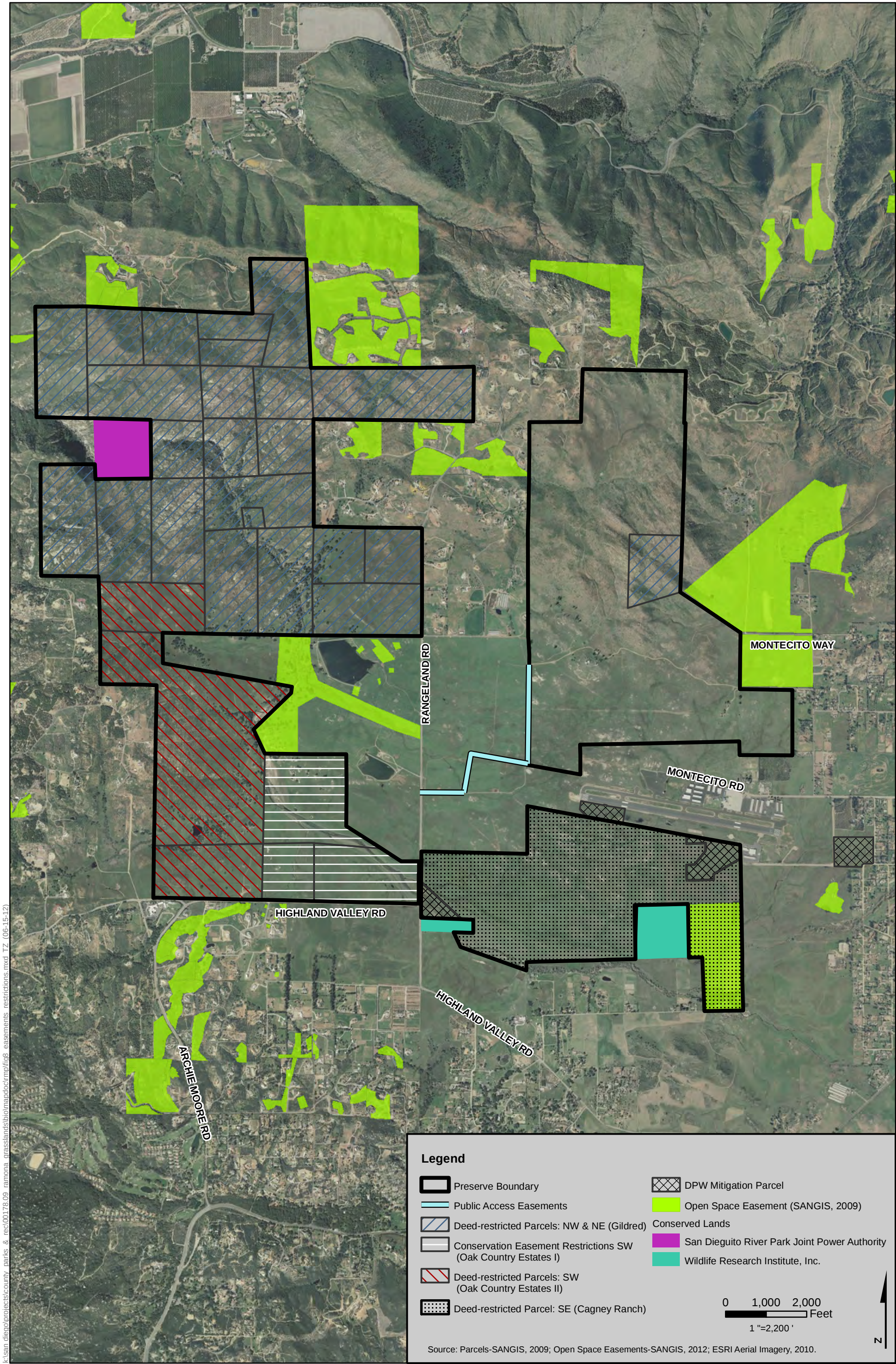


Figure 8b
Easements, Deed Restrictions, Conserved Lands, Open Space Easements, and Mitigation Parcels
Ramona Grasslands

of Conservation and Flood Easement” agreement (DPR 2004). This portion of Santa Maria Creek is considered a Federal Emergency Management Agency (FEMA) floodplain property and is part of a rural flood protection corridor (SDSU 2009).

Deed Restrictions

Several deed-related issues apply to certain parts of the Preserve and affect aspects of the Preserve such as public access, improvements, etc. Establishment of the Preserve from 2004 through 2009 involved the County, the State of California, the Federal Government, The Nature Conservancy (TNC), and local landowners. Preserve land acquisitions occurred largely with funds from the Endangered Species Act Section 6 Non-traditional Land Acquisition Program, which stipulates the management of those properties primarily for conservation of biological resources. However, acquisition of the NW portion of the Preserve also included funds from Proposition 50 (California River Parkways Grant Program). One of the requirements of Proposition 50 included the requirement of the grantee to provide appropriate public access to the property. The acquisition of a majority of the Preserve was facilitated by TNC, and the County acquired the properties within the Preserve from TNC. The acquisition of the properties came with associated conservation easements and deed restrictions from TNC.

In the SW, SE, and NW portions of the Preserve (plus one section of the NE portion), deed restrictions set forth allowable uses and improvements, and permit existing and new multi-use trails for non-motorized, passive recreation. In the SE portion, additional restrictions are associated with conservation easements on two County Department of Public Works mitigation parcels (managed by DPR) located along the eastern and western boundaries of the SE portions of the Preserve.

Long-Term Stephens’ Kangaroo Rat Management Area

Per the USFWS–issued Biological Opinion for the Oak Country II Trail Project (FWS-SDG_08B0770-11F0268), DPR was required to initially enhance (i.e., mow and dethatch) an approximately 3-acre area of grassland habitat adjacent to the staging area in the SW portion of the Preserve to benefit SKR. Long-term maintenance and management of this 3-acre management area is included in this RMP, and will be conducted in compliance with the Biological Opinion referenced above.

Ramona Airport Improvement Project Mitigation Properties

Per a Memorandum of Understanding (MOU) signed on November 8, 2005, between the County of San Diego DPR and Public Works, DPR is responsible for long-term management and monitoring of the Ramona Airport Improvement Project’s three mitigation properties including: TNC Vernal Pool Mitigation Parcel (Assessor’s Parcel Number [APN] 282-010-62), TNC Wetland Mitigation Parcel (APN 277-121-17), and Two Acre Subset of the Ramona Airport Property containing vernal pools C3w, C21a, C21, K3, R24, C20, K2, C2e, C3e, C19a, and R5. The long-term monitoring and management requirements for the properties are outlined in the USFWS–issued Biological Opinion (FWS Log Nr. 1-6-98-F-833.1-R1 formerly 1-6-98-F-46), Regional Water Quality Control Board (RWQCB) issued Section 401 Water Quality Certification (File No. 00C-109), CDFG Streambed Alteration Agreement (#R5-2001-0015), and USACE Nationwide Permit Authorization (No. 942090900-SKB) for the project. The Biological Opinion for the project required a Habitat Management Plan for the management and monitoring of the vernal pool mitigation sites (FAA 2003) and a Wetlands Mitigation Plan for the management and monitoring of the wetland mitigation site (Mooney Jones & Stokes 2005). The MOU was executed to assign long-term monitoring and

management of the mitigation properties to DPR. DPR's long-term monitoring and management of the three mitigation areas include, but are not limited to: biotic surveys, hydrologic monitoring, habitat maintenance such as invasive plant control, controlled burning and debris removal, fence and sign maintenance and repair, and annual reporting. The long-term management and monitoring is included in the RMP.

Biological and Open Space Easements and Conserved Lands

Biological and Open Space Easements are found adjacent to the Preserve on RMWD property and within adjacent private residential developments (Figure 8b). DPR will perform monitoring within these properties in conjunction with Preserve monitoring. The San Dieguito River Park Joint Power Authority owns property directly adjacent to the Preserve (Figure 8a). DPR will coordinate with the Joint Powers Authority to perform monitoring on the property.

2.5 Trails

Because most of the Preserve has been ranched, there is an existing network of dirt ranch roads that provide access either by vehicle or foot to most areas. These roads are well maintained and are used primarily for maintenance and care of livestock on the Preserve. There are also older, less frequently maintained roads, such as those in the northern section of the NE portion, that are only accessible via four-wheel-drive vehicle or by foot.

The County intends to provide an approximately 9.3-mile multi-use trail system within the Preserve for hiking, biking, and equestrian users (Figure 3). The proposed trail system will connect three portions of the Preserve. The trail system would utilize existing ranch roads and trails to the greatest possible extent, with some new trail construction and a crossing of Santa Maria Creek to increase connectivity in the Preserve. Approximately 8 miles of the proposed trail system already exist in the form of 4 to 10-foot-wide dirt roads that either remain from prior ranching activity or were recently constructed as part of the Oak Country II Trail project. New trails are proposed to be constructed in the NW portion of the Preserve. Approximately 2 miles of pathways are proposed along Highland Valley and Rangeland Roads.

The implementation of the trail system will be completed in three phases. Phase I will include the trails, staging area, and associated infrastructure in the NE portion of the Preserve. Phase II will involve connecting the existing Oak Country II Trail system to Phase I trails in the NE portion of the Preserve. This will include 0.8 miles of new trail with a crossing of Santa Maria Creek, construction of a pathway on the west side of Rangeland Road, installation of road crossing signage, and construction of 0.4 mile of new trail within the RMWD easement. Phase III is a future phase that, if feasible, will construct pathways along the southern portion of Rangeland Road and along Highland Valley Road ultimately connecting the NW and NE portion of the preserve to the Oak Country staging area.

In addition, public access in the Preserve offers potential connections with the following offsite trails identified in the Ramona Community Trails and Pathways Plan:

- #8—Santa Maria Creekside Trail
- #52—Handlebar/Whirlwind Trail

- #53—Montecito Pathway
- #57—Kearny Historic Trail/Old Survey Road 97
- #93—Montecito Trails System
- #104—Tori Trail

Proposed trails and pathways are described below for each portion of the Preserve.

2.5.1 Southwest Portion

Public access in this portion of the Preserve is provided by the recently constructed Oak Country II trails, comprising approximately 4 miles of trails in two connected loops. The Oak Country II Trail project includes a staging area off Highland Valley Road with two shaded picnic areas, and ten vehicle parking spaces with overflow room and pull-through parking for four vehicles towing trailers. No additional trail improvements are proposed within the SW portion of the Preserve, with the exception of a connection to the NW portion of the Preserve discussed below. Pathways are proposed (1) along the north side of Highland Valley Road from the Oak Country II staging area east to Rangeland Road (0.8 mile) and (2) along the west side of Rangeland Road from the intersection with Highland Valley Road north to the secondary access to the NW portion (1.2 miles) discussed below. Access between the NW and east portions of the Preserve would be across Rangeland Road at a proposed crossing.

2.5.2 Northwest Portion

Construction of a new 0.8-mile trail segment will connect Oak Country II trails in the SW portion of the Preserve to Rangeland Road. This connection would necessitate crossing Santa Maria Creek (see discussion below).

Access to the proposed trail in this portion of the Preserve from the east is via a 0.6-mile public road easement (i.e., unpaved road) that lies between the NW portion of the Preserve and RMWD property. This unpaved road intersects with the proposed pathway along Rangeland Road. There would be no provisions for vehicle parking at this location. This trail access point would include a kiosk for visitor orientation and general information. The main access is from the west via the Oak Country II staging area.

Public access in the NW portion of the Preserve includes a proposed crossing of Santa Maria Creek, which initially would be a dry weather crossing. At some point in time, an all-weather structural crossing (e.g., bridge) would be constructed for pedestrian, cyclist, and equestrian use. The structural crossing would have a maximum width of 12 feet and would consist of non-slip and all-weather materials consistent with the guidelines from the Community Trails Master Plan (San Diego County 2005; updated in 2009). The structural crossing would be designed with sufficient length to span Santa Maria Creek with little to no direct impacts on federal and state jurisdictional waters or wetlands. A temporary construction staging area would be established during bridge construction.

An alternative to the proposed crossing of Santa Maria Creek discussed above is to utilize a crossing proposed to be constructed by RMWD on their property associated with their yet to be approved Santa Maria Wastewater Treatment Plant Expansion project. The proposed crossing is located immediately south of the NW portion of the Preserve. This alternative would require permission from RMWD and could be utilized after RMWD constructs the proposed crossing.

There is an existing ranch road that traverses the NW portion of the Preserve in a north and then northwesterly direction, known as Old Survey Road 97. While this route is not formally part of the proposed trail network it will possibly be open for public access during docent-led tours at appropriate times of the year—as determined by monitoring. Near the northwest corner of the NW portion of the Preserve, the existing Old Survey Road 97 splits into a southern and northern route. The southern route will be closed and passively restored as habitat.

2.5.3 Northeast Portion

Approximately 3 miles of trails are proposed for this portion of the Preserve, consisting of existing unpaved ranch roads and trails. Primary access to the proposed trails is from the east, which can be reached via an unpaved, unnamed road existing west from Montecito Way. A new staging area will be constructed directly east of the vacant house and associated barn and rodeo corral. The staging area would be up to a maximum of approximately 3 acres in size and will include 30 visitor parking spaces with additional overflow car parking and 18 horse trailer parking areas, hitching rails, an informational kiosk, trash receptacles, bathrooms, and picnic tables or benches. Secondary access will occur from Rangeland Road via a public access easement through RMWD property. This access route utilizes a portion of an existing unpaved road, but would also require 0.4 mile of new trail construction where the easement is adjacent to the Ramona Airport property.

2.5.4 Southeast Portion

Because of existing deed restriction and sensitive resources throughout this portion of the Preserve, most of the SE portion is unavailable for public access. However, the southeastern tip allows for connection to a future trail system associated with the proposed Cumming Ranch Development adjacent to the Preserve. If the Cumming Ranch Development, including trails, moves forward, there would be an approximately 0.3-mile trail connector segment within the SE portion. This segment is included in the Cumming Ranch Development Draft Environmental Impact Report and is not discussed in this report.

Chapter 3

Biological Resources Description

In 2009 ICF conducted baseline biological resources surveys of the Preserve. The results of these surveys can be found in the biological resources report entitled, *Baseline Biological Survey Report for the Ramona Grasslands Preserve, County of San Diego*, dated August 2010, provided as Appendix A to this report. The survey results were used in the preparation of this RMP.

The surveys documented 20 vegetation types and 626 species within the Preserve. The species detected included 409 plant species (of which 299 were native), 52 invertebrate species, 6 amphibian species (including one nonnative), 21 reptile species, 100 bird species (including one nonnative), and 37 mammal species (including 4 nonnative). Of these species, there are 55 special-status species, of which 18 are Draft North County Plan-covered species (4 plants and 14 animals). Of the covered species, 4 are subject to the North County Plan Narrow Endemic Policy (1 plant and 3 animals).

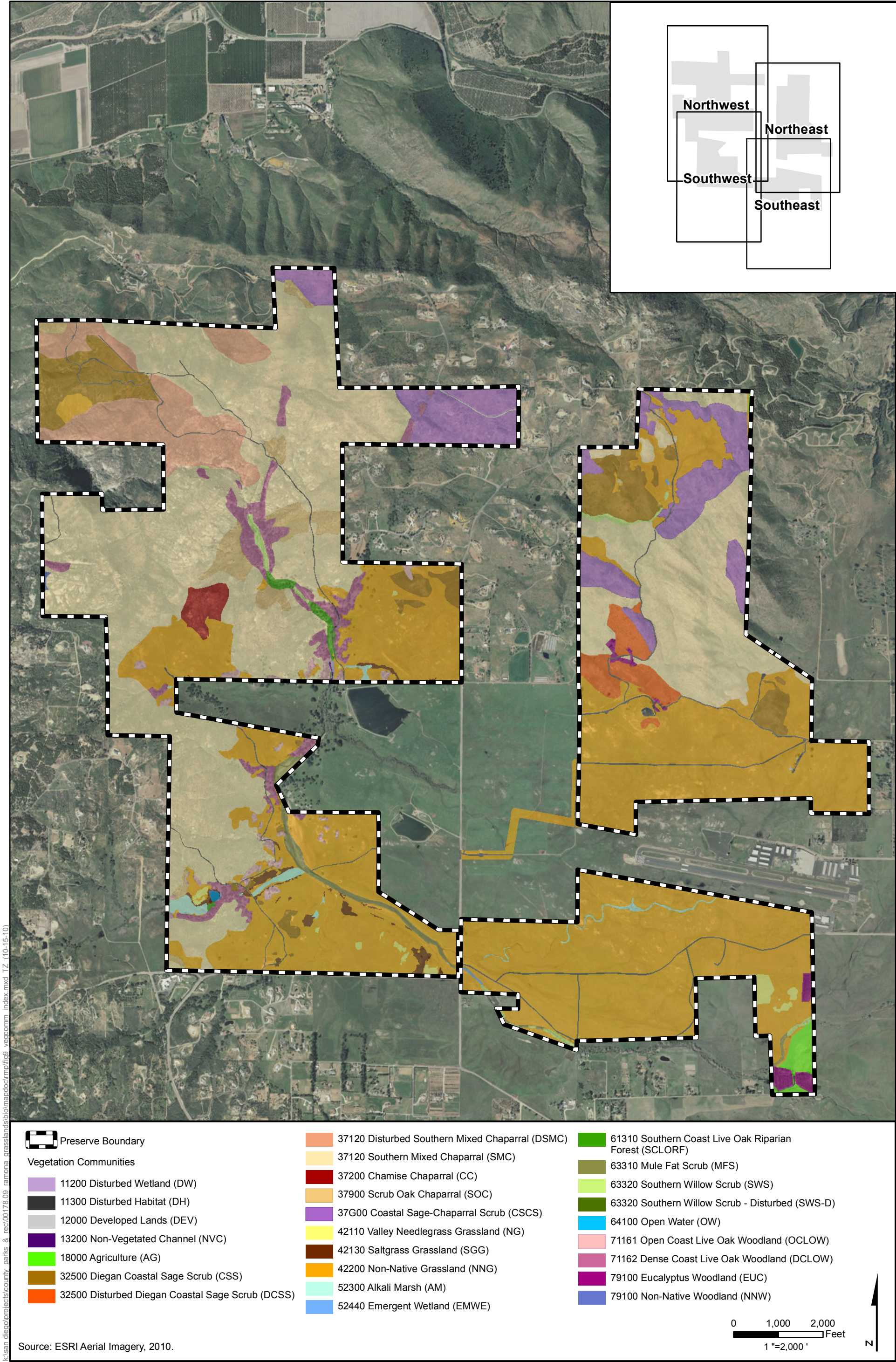
3.1 Vegetation Communities/Habitats

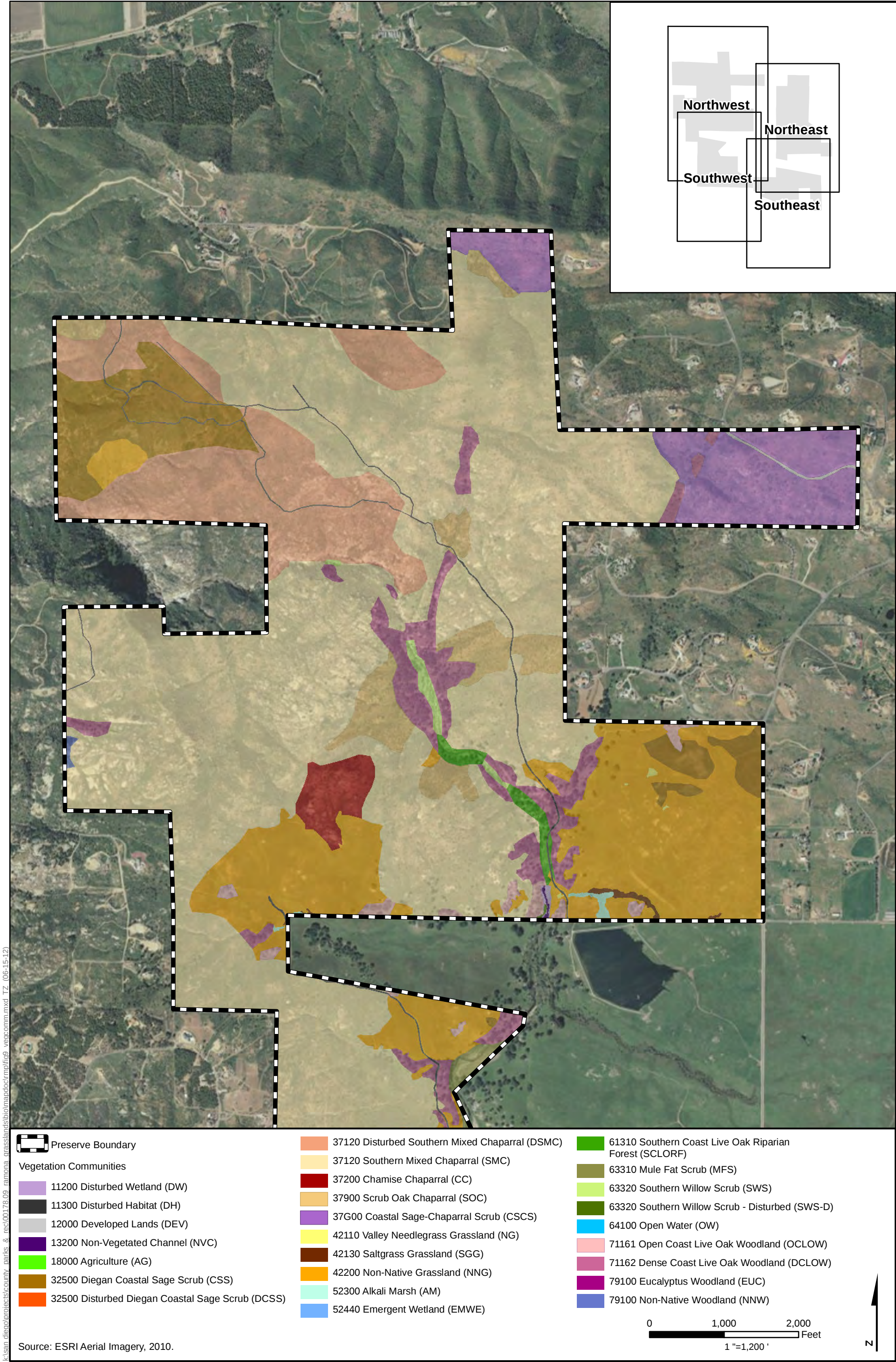
Vegetation communities and land cover types present on the Preserve include: eucalyptus woodland, nonnative woodland, disturbed habitat, developed lands, open water, agriculture, Diegan coastal sage scrub, coastal sage-chaparral scrub, southern mixed chaparral, chamise chaparral, scrub oak chaparral, valley needle grassland, saltgrass grassland, nonnative grassland, alkali marsh, emergent wetland, disturbed wetland, non-vegetated channel, southern coast live oak riparian forest, mule fat scrub, southern willow scrub, open coast live oak woodland, and dense coast live oak woodland (Figure 9, Table 3-1). In addition to the vegetation communities listed above, vernal pools and vernal swales occur within the grasslands. During the 2009 surveys, focused vernal pool surveys were not conducted because these resources were thoroughly studied in 2005 and 2006 (CBI 2007); however, focused vernal pool plant surveys and non-protocol fairy shrimp surveys were conducted in 2010 to supplement existing data. A detailed description of the vernal pools and swales within the Preserve is presented after the vegetation communities in this section.

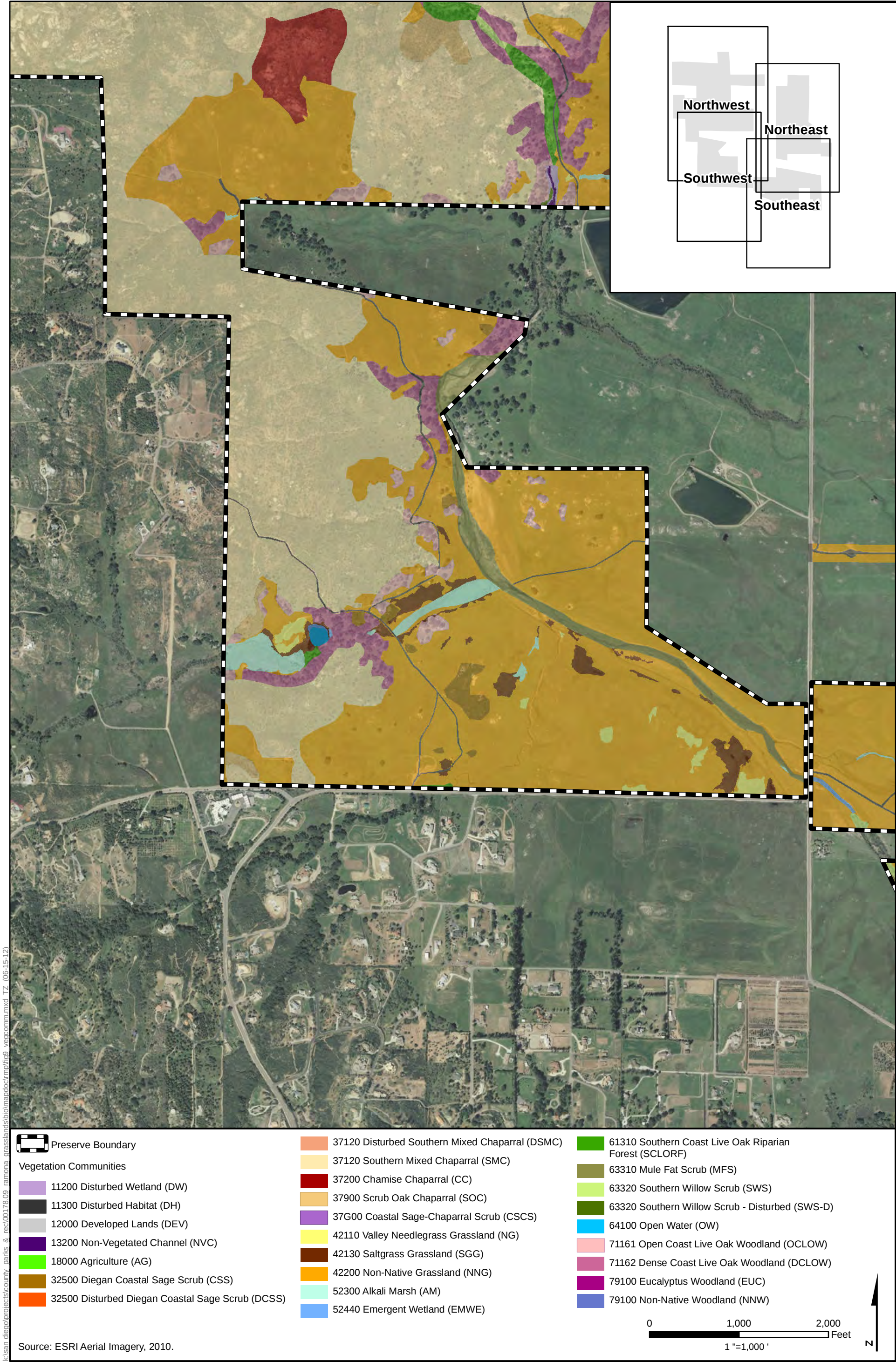
The vegetation communities and associated dominant plant species detected during the surveys are described below.

Table 3-1. Vegetation Communities within the Preserve

Vegetation Community/Habitat Type (Holland Code)	Approximate Area (acres)
Scrub and Chaparral	
Diegan Coastal Sage Scrub (32500)	151.02
Disturbed Diegan Coastal Sage Scrub (32500)	47.97
Coastal Sage-Chaparral Scrub (37G00)	201.34
Southern Mixed Chaparral (37120)	1,228.11
Disturbed Southern Mixed Chaparral (37120)	157.80
Chamise Chaparral (37200)	18.81
Scrub Oak Chaparral (37900)	57.80
Subtotal	1,862.85
Grasslands	
Valley Needlegrass Grassland (42110)	14.22
Saltgrass Grassland (42130)	15.63
Nonnative Grassland (42200)	1,374.69
Subtotal	1,404.54
Wetlands	
Open Water (13100)	0.84
Alkali Marsh (52300)	8.81
Emergent Wetland (52440)	0.84
Disturbed Wetland (11200)	0.81
Non-Vegetated Channel (13200)	0.35
Southern Coast Live Oak Riparian Forest (61310)	9.37
Mule Fat Scrub (63310)	23.26
Southern Willow Scrub (63320)	14.26
Subtotal	58.54
Woodlands	
Nonnative Woodland (11000)	1.02
Eucalyptus Woodland (11000)	16.10
Open Coast Live Oak Woodland (71161)	20.58
Dense Coast Live Oak Woodland (71162)	82.13
Subtotal	119.83
Other Land Cover Types	
Disturbed Habitat (11300)	23.88
Agriculture (18000)	17.88
Developed Lands (12000)	1.50
Subtotal	43.26
TOTAL	3,489.00







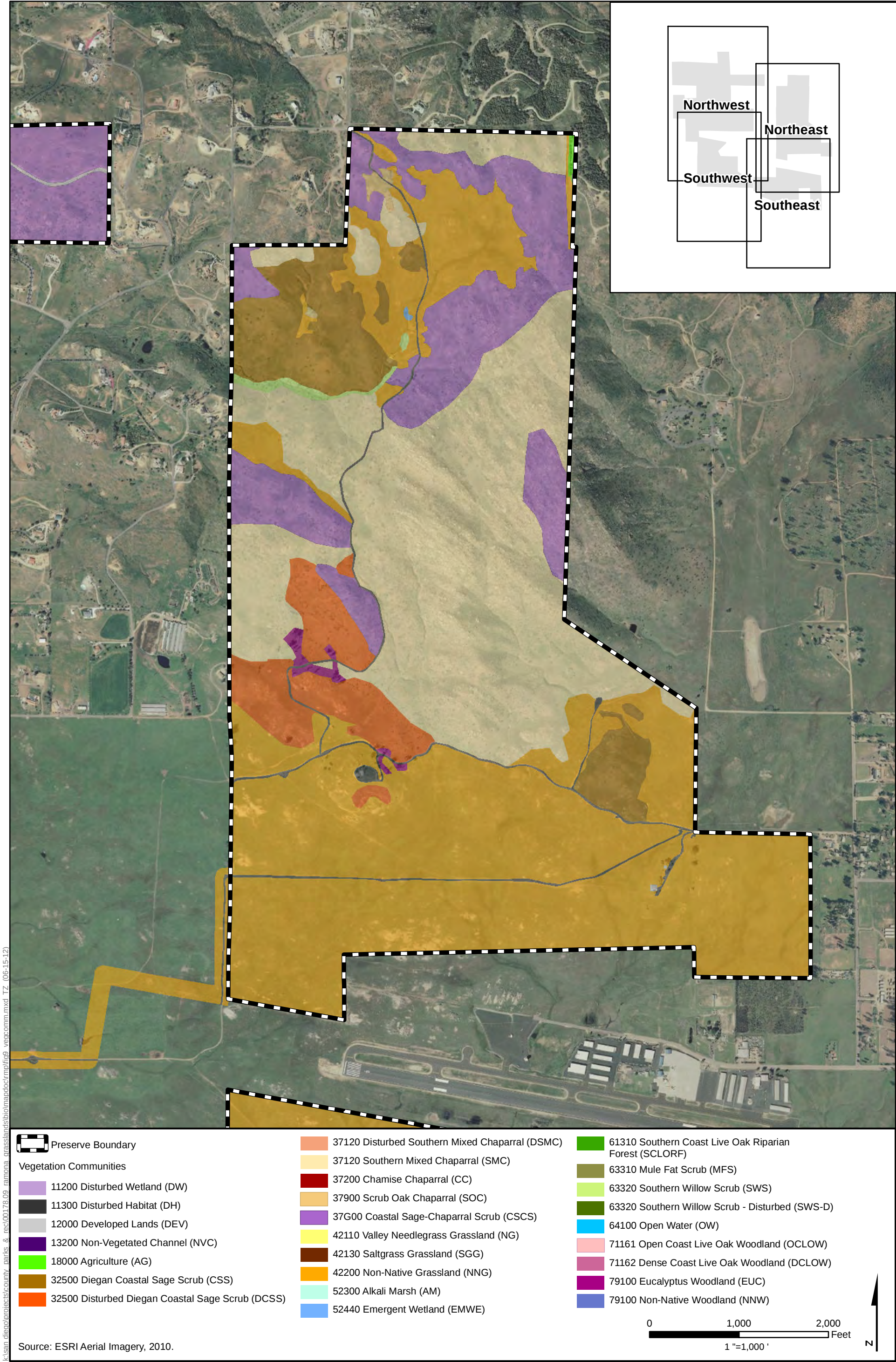
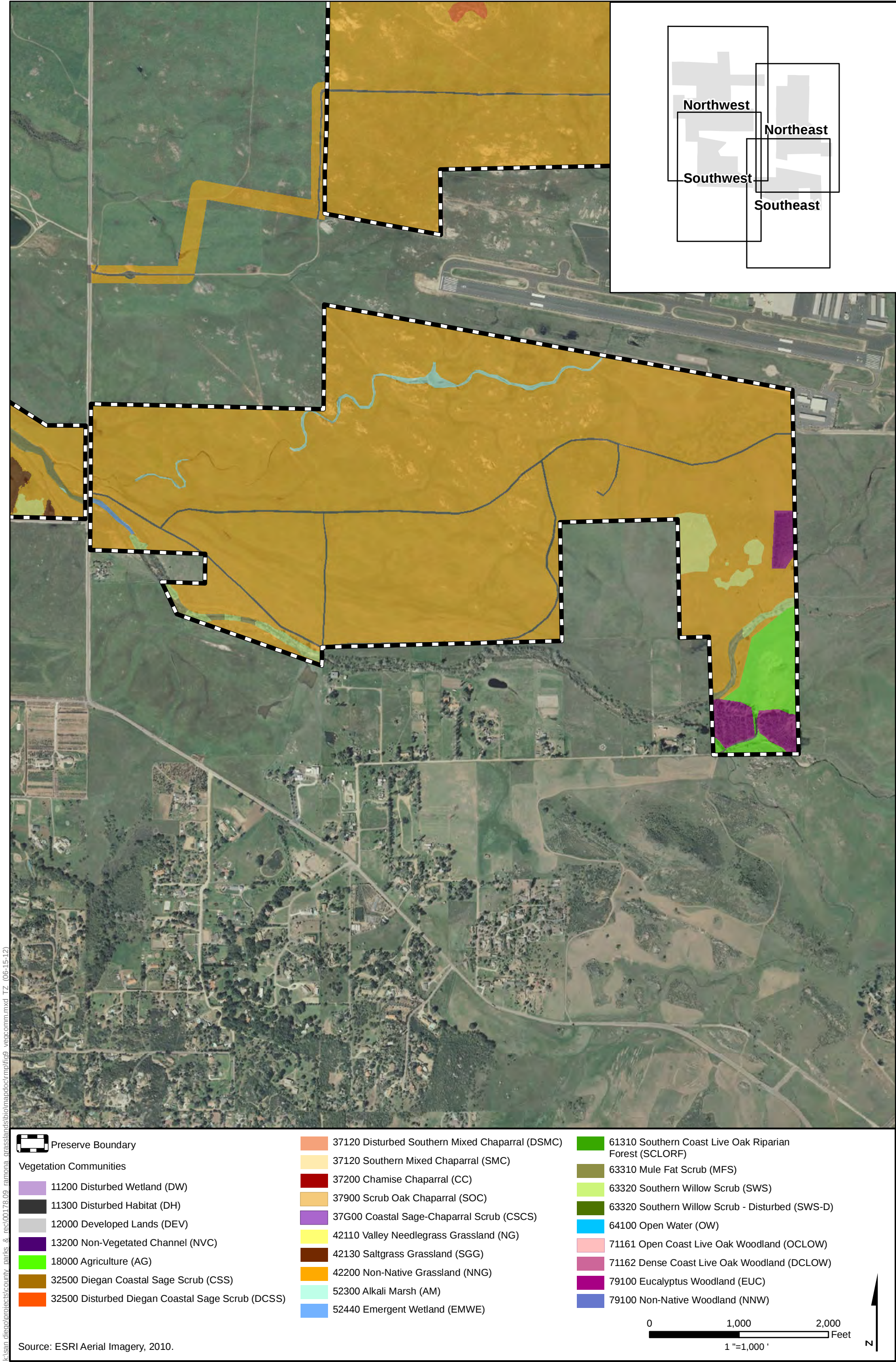


Figure 9c
Vegetation Communities/Habitats
Ramona Grasslands



3.1.1 Eucalyptus Woodland (11000)

Eucalyptus woodlands on the Preserve consist of monoculture stands of gum trees (*Eucalyptus* spp.). The stands along the eastern edge of the SE portion appear to have been planted as the trees are evenly spaced in rows. The eucalyptus woodland on the NE portion is near the abandoned residence and just to the north of the residence.

3.1.2 Nonnative Woodland (11000)

Nonnative woodland is a community made up of nonnative trees planted for ornamental or agricultural purposes, but appears to be abandoned. Within the Preserve, a small patch of nonnative woodland occurs on the western side of the NW portion and consists of citrus trees (*Citrus* sp.), avocado (*Persea americana*), and fan palms (*Washingtonia robusta*).

3.1.3 Disturbed Habitat (11300)

Disturbed habitat within the Preserve consists primarily of ranch roads. These areas consist of mostly bare ground.

3.1.4 Developed Lands (12000)

Developed land typically consists of existing paved roads, buildings, and other infrastructure. On the Preserve, the only area mapped as developed is a paved road that crosses through the edge of the eastern side of the NW portion and provides access to adjacent residences.

3.1.5 Open Water (13100)

Open water refers to a body of water such as a lake or a pond. On the Preserve, open water consists of a stock pond located on the SW portion. This pond held water throughout the 2009 surveys and appears to be utilized by cattle year-round. No riparian vegetation such as cattails (*Typha* sp.) or willows (*Salix* sp.) surrounds the pond.

3.1.6 Agriculture (18000)

Agriculture consisted of a fenced pasture in the corner of the SE portion where cattle were more intensively grazed than the remainder of the Preserve.

3.1.7 Diegan Coastal Sage Scrub (32500)

Diegan coastal sage scrub is typically characterized by low, woody subshrubs that grow up to 1 meter (3 feet) in height (Holland 1986). Dominant species within the coastal sage scrub found on the Preserve include California buckwheat (*Eriogonum fasciculatum*), coastal sagebrush (*Artemisia californica*), deerweed (*Lotus scoparius*), and black sage (*Salvia mellifera*). Other species noted on site include nonnative grasses such as slender oat (*Avena barbata*), foxtail chess (*Bromus madritensis*), and fescue (*Vulpia myuros*). Diegan coastal sage scrub occurs in scattered patches throughout the Preserve generally on northwestern-facing slopes. Currently, these areas are best described as small unburned patches mostly dominated by California buckwheat that cattle often graze through. There are two larger areas mapped as Diegan coastal sage scrub on the NE portion.

These areas were burned in the 2007 Witch Fire and are slowly returning to a coastal sage scrub community. The abundance of nonnative species and the sparse distribution of typically dominant shrub species are the characteristics that distinguish disturbed Diegan coastal sage scrub from undisturbed Diegan coastal sage scrub. Disturbed Diegan coastal sage scrub is found on the NE portion in an area where nonnative grasses formed approximately 80% of the ground cover and coastal sage scrub species were present in patches. This area was burned and has signs of disturbance from cattle grazing. The wildlife species observed using the sparse shrubby areas were different from those that would use grasslands; therefore, the area is currently functioning as poorly developed coastal sage scrub.

3.1.8 Coastal Sage-Chaparral Scrub (37G00)

Coastal sage-chaparral scrub consists of a mixture of herbaceous and shrubby species that forms a community with features of both coastal sage scrub and chaparral (Holland 1986). Within the Preserve, this community appears to be a post-fire successional community. Dominant species include spiny redberry (*Rhamnus crocea*), chamise (*Adenostema fasciculatum*), black sage, California buckwheat, coastal sagebrush, foxtail chess, slender wild oat, deerweed, golden bush (*Hazardia squarrosa*), white sage (*Salvia apiana*), and short-pod mustard (*Hirschfeldia incana*). Coastal sage-chaparral scrub occurs on slopes in the northern peripheries of the NW portion and more extensively on the northern slopes of the NE portion.

3.1.9 Southern Mixed Chaparral (37120)

Southern mixed chaparral is a broad-leaved sclerophyll shrub community forming dense often impenetrable vegetation dominated by chamise, mission manzanita (*Xylococcus bicolor*), lilac (*Ceanothus oliganthus*), and scrub oak (*Quercus berberidifolia*) (Holland 1986). Other species observed during the field surveys included Ramona lilac (*Ceanothus tomentosus*), laurel sumac (*Malosma laurina*), Mexican elderberry (*Sambucus mexicanus*), poison oak (*Toxicodendron diversilobum*), sugar bush (*Rhus ovata*), and toyon (*Heteromeles arbutifolia*). Southern mixed chaparral is the dominant scrub community on the western portions and also occurs on the slopes in the central section of the NE portion. The abundance of nonnative species and the sparse distribution of typically dominant shrub species are the characteristics that distinguish disturbed southern mixed chaparral from undisturbed southern mixed chaparral. On the NW portion, the area mapped as disturbed is not recovering from the Witch Fire as successfully as the surrounding habitat. There is a much greater abundance of nonnative grasses.

3.1.10 Chamise Chaparral (37200)

Chamise chaparral is a 1 to 3-meter (3 to 6-foot) tall chaparral dominated by chamise and is well adapted to repeated fires (Holland 1986). Mature stands of chamise chaparral are densely interwoven shrubs with little herbaceous understory or litter. A patch of chamise chaparral occurs in the southern area of the NW portion.

3.1.11 Scrub Oak Chaparral (37900)

Scrub oak chaparral is a dense, evergreen chaparral that reaches 6 meters (20 feet) in height, is dominated by scrub oak, and can have a thick canopy that reaches the ground (Holland 1986). There are few understory plants and typically the understory consists of a substantial accumulation of leaf

litter (Holland 1986). Other species associated with this community include chaparral whitethorn (*Ceanothus leucodermis*), toyon, and sugar bush. This community can be found scattered on north-facing slopes on the northern and SW portions.

3.1.12 Valley Needlegrass Grassland (42110)

Valley needlegrass grassland in southern California is typically characterized by native grass species in the genus *Nasella* (Holland 1986). Native grasslands usually occur in upland areas with little or no history of agricultural development. Small, isolated native grasslands occur on clay lenses, or in small pre-Pleistocene deposits of dense clay materials. Native and nonnative annuals occur in the gaps between the perennials (Holland 1986). The largest area of valley needlegrass grassland was mapped in the SE portion with a few smaller polygons in the NW portion.

3.1.13 Saltgrass Grassland (42130)

Saltgrass grassland is characterized by low grasslands dominated by saltgrass (*Distichlis spicata*). This vegetation community intergrades and often co-occurs with alkali meadows and various riparian habitats and is found on fine textured, usually alkaline soils that are often poorly drained. Saltgrass grassland was mapped primarily in the SW portion of the Preserve, with a few smaller polygons in the NW portion of the Preserve.

3.1.14 Nonnative Grassland (42200)

Nonnative grassland is characterized by a dense to sparse cover of annual grasses reaching up to 1 meter (3 feet), which may include numerous native wildflowers, particularly in years of high rainfall (Holland 1986). These annuals germinate with the onset of the rainy season and set seeds in the late spring or summer. This community is usually found on fine-textured soils that proceed from moist or waterlogged in the winter to very dry during the summer and fall (Holland 1986). Nonnative grasslands, in many circumstances, have replaced native grasslands as a result of disturbance (directly human-made [e.g., mechanical disturbance, grazing] or natural [i.e., altered fire cycles]).

Nonnative grassland habitat characteristics within the Preserve have been heavily influenced by historical and current land uses, including cattle grazing. In addition, vegetative structure on the clay soils tends to be quite different from that on loamy soils. However, existing grassland community composition patterns are confounded by spatial patterns of grazing in the Preserve. Existing fences, rock outcrops, water sources, and topography tend to concentrate cattle activity more in some areas than others, resulting in a mosaic of grazing intensities and habitat disturbance. Some areas far from water sources, and especially those on the clay soils at the eastern end of the SE portion, are lightly grazed resulting in a dense cover of invasive nonnative annuals and accumulated thatch. Dominant plants observed within the clay grasslands include small flowered bindweed (*Convolvulus simulans*), California large-leaf filaree (*California macrophylla*), dwarf plantain (*Plantago erecta*), foxtail chess, slender wild oat, ripgut brome (*Bromus diandrus*), common tarweed (*Deinandra fasciculatum*), and graceful tarplant (*Holocarpha virgata* ssp. *elongata*). Dominant plants within the loamy grassland areas include saltgrass (*Distichlis spicata*), filaree (*Erodium* sp.), rip gut, slender wild oat, and foxtail chess.

3.1.15 Alkali Marsh or Alkali Playas (52300)

Alkali marsh is characterized by standing water or saturated soil present during most or all of the year where high evaporation and low input of fresh water increases the salt content in the marsh (Holland 1986). This habitat type can be found within the Santa Maria Creek floodplain, mostly north of the creek in the SW portion of the Preserve. Associated plant species include yerba mansa (*Anemopsis californica*), sedges (*Carex* spp.), rushes (*Juncus* spp.), southern cattail (*Typha domingensis*), and saltgrass. During the 2009 surveys, some areas that were previously mapped as freshwater marsh were mapped as alkali marsh. The areas were mapped as alkali marsh due to the presence of species more consistent with Holland's description of alkali marsh rather than freshwater marsh including salt grass, Mexican rush (*Juncus mexicanus*), and yerba mansa. However, Holland's description of alkali marsh explains that there are similarities between freshwater and alkali marsh and that the two communities can intergrade. The area should remain mapped as alkali marsh based on the species composition observed in 2009.

3.1.16 Emergent Wetland (52440)

Emergent wetland usually consists of pockets of slow moving water on the margins of streams that lack the well-developed, larger marsh or riparian plant species associations. This habitat provides valuable cover for amphibians, mammals, and birds. Plants associated with this habitat included cattail, viscid bulrush (*Schoenoplectus acutus* var. *occidentalis*), and sedges. Emergent wetland occurs along Santa Maria Creek in the southern section of the NW portion, in the western section of the SE portion, and also in a small patch in the northern section of the NE portion.

3.1.17 Disturbed Wetland (11200)

This land cover type was mapped during the 2011 formal jurisdictional delineation of the proposed crossing of Santa Maria Creek in the NW portion of the Preserve and consists of the vegetated active floodplain adjacent to the open channel. This area supported yerba mansa and Mexican rush, as well as upland grasses such as wild oats.

3.1.18 Non-Vegetated Channel (13200)

This land cover type was mapped during the 2011 formal jurisdictional delineation of the proposed crossing of Santa Maria Creek in the NW portion of the Preserve and consists of the open channel, which during the delineation supported flowing water.

3.1.19 Southern Coast Live Oak Riparian Forest (61310)

Southern coast live oak riparian forest is found in bottomlands and outer floodplains along larger streams, on fine-grained rich alluvium (Holland 1986). It consists of a dense evergreen riparian forest dominated by coast live oak (*Quercus agrifolia*) (Holland 1986). There are two patches of southern coast live oak riparian forest within the Santa Maria Creek channel on the NW portion of the Preserve, one patch in the western section of the SW portion adjacent to the stock pond, and a small patch adjacent to Highland Valley Road on the south side of the SW portion.

3.1.20 Mule Fat Scrub (63310)

Mule fat scrub is described as a depauperate, tall, herbaceous riparian scrub dominated by mule fat (*Baccharis salicifolia*) (Holland 1986). Mule fat scrub is usually found in intermittent stream channels with fairly coarse substrate and moderate depth to the water table and requires frequent flooding (Holland 1986). If frequent flooding does not occur, mule fat scrub commonly succeeds to cottonwood or sycamore dominated riparian forests or woodlands (Holland 1986). Mule fat scrub occurs within the Santa Maria Creek channel on the southern portions of the Preserve.

3.1.21 Southern Willow Scrub (63320)

Southern willow scrub is found on loose, sandy, or fine gravelly alluvium deposited near stream channels (Holland 1986). This habitat was once extensive along the major rivers of coastal southern California, but has been greatly reduced by urbanization, flood control, and streambed improvements (Holland 1986). Southern willow scrub is described as dense, broad-leaved, winter-deciduous riparian thickets dominated by several *Salix* species, with sub-dominants such as mule fat that is often too dense to support a well-developed herbaceous understory (Holland 1986). Fremont cottonwoods (*Populus fremontii*) and western sycamores (*Platanus racemosa*) are scattered in the scrub as seedlings or saplings. Southern willow scrub occurs in three patches in the Santa Maria Creek on the NW portion and several more patches along the Santa Maria Creek on the SE portion. It can also be found in a drainage in the northern section of the NE portion.

3.1.22 Open Coast Live Oak Woodland (71161)

Open coast live oak woodland consists of an open canopy of coast live oak trees that reach 10–25 meters (33–82 feet) in height (Holland 1986). The understory can be variable, with shrubs recruited from surrounding chaparral and sage scrub communities forming dense, impenetrable stands, or it can be more open with scattered shrubs with a more herbaceous understory (Holland 1986). Typical understory species include toyon, chamise, and lilacs (*Ceanothus* spp.). There are scattered patches of open coast live oak woodland throughout the Preserve, usually on the peripheries of areas with dense coast live oak woodland.

3.1.23 Dense Coast Live Oak Woodland (71162)

Dense coast live oak woodland consists of a closed canopy of coast live oak trees, usually with trees in denser groupings than in open coast live oak woodland. Understory vegetation is made up of more shade tolerant shrubs and herbs such as toyon, various native ferns (*Polypodium* sp., *Cheilanthes* spp.), or a thick layer of litter. Dense coast live oak woodland occurs along the Santa Maria Creek in the western portions of the Preserve and in the western hills of the SW portion. There are also scattered patches of this community where soils and hydrology allow this community to develop.

3.1.24 Vernal Pools and Swales (44000)

Vernal pools are scattered throughout the Preserve, but are concentrated in the southeast corner, south of the Ramona Airport. The pools in the Airport complex display a distinct, although shallow, mima mound topography. The length of ponded conditions in the vernal pools monitored in 2005 varied substantially, but pools in the Airport complex tended to be the least persistent (RECON 2005).

in CBI 2007). Many of the vernal pools in the Preserve outside of the Airport complex appear to be associated with swale features that have been physically modified by historic land use changes (e.g., dry farming, Ramona Airport runway construction, and impoundment) that have altered swale hydrology and morphology. A deeply incised swale draining the airport runway and discharging into Santa Maria Creek has been named the *Cagney swale*, and a substantial swale feature exists on the northern portion of Cumming Ranch (referred to in this report as the *Cumming swale*) that has been impounded to create a stock pond. Sections of the Cagney and Cumming swales support ephemeral pools that function in some respects like vernal pools. The Ramona vernal pools are part of the Inland Valley Management Area of the Southern California recovery plan (USFWS 1998).

The vernal pools south of the Ramona Airport and the Cagney swale are associated with Placentia soils, while many of the other pools in the Preserve are associated with Bonsall, Fallbrook, or Bosanko soils (Figure 5). Vernal pools in the Preserve are variable in their species composition (CBI 2007), but cover in the center portions of the pools is typically dominated by Italian ryegrass, Mediterranean barley (*Hordeum marinum*), pale spike-sedge (*Eleocharis macrostachya*), iris-leaved rush (*Juncus xiphioides*), dwarf woolly-heads (*Psilocarphus brevissimus*), owl's clover (*Castilleja densiflora*), and hyssop loosestrife (*Lythrum hyssopifolium*). Outside of the deepest parts of the pools, nonnative annual grass and forbs, including long-beak filaree, soft chess (*Bromus hordeuceus*), slender wild oat, and hairy rat-tail fescue (*Vulpia myuros*) are increasingly important contributors to vegetative cover. Several rare and sensitive native species were detected in the vernal pools during 2005 and 2006 field surveys, including southern tarplant, small-flower microseris (*Microseris douglasii* ssp. *platycarpa*), coast popcornflower (*Plagiobothrys undulatus*), and dwarf peppergrass (*Lepidium latipes*). Little mouseltail (*Myosurus minimus* ssp. *apus*) and the federally threatened spreading navarretia (*Navarretia fossalis*) have been detected in the vernal pools in the Ramona area but were not detected in the Preserve during field surveys in 2005 and 2006. Vernal pools were not surveyed during the 2009 baseline survey; however, focused vernal pool plant surveys and non-protocol fairy shrimp surveys were conducted in 2010 to supplement existing information.

Vernal pool watershed function in other vernal pool systems has been maintained by decreasing thatch buildup through cattle grazing (Marty 2005, Pyke and Marty 2005). Following the increase in vegetative biomass from the 2005 rains, high levels of thatch were seen in the Airport vernal pools in 2006, presumably because cattle did not graze this portion of the Preserve as heavily as other parts (e.g., loamy grassland areas, CBI 2007). Anecdotal evidence suggests that increased biomass and residual thatch in areas where cattle grazing has been discontinued (e.g., Ramona Airport, CBI 2003) result in higher water absorption rates and, thus, less surface water runoff filling the vernal pools (Ecological Ventures California 2003). However, it has been suggested that water quality in the Cumming Ranch vernal pools may be compromised by cattle ranching (EDAW 2003), although the effect on vernal pool species is unclear.

3.2 Plant Species

3.2.1 Plant Species Present

Floristic inventories detected 409 plant species at the Preserve. The Baseline Biological Survey Report (Appendix A) includes the complete list of all plant species observed during the surveys.

3.2.2 Rare, Threatened, or Endangered Plant Species Present

The following section discusses special-status plant species observed within the Preserve. A special-status plant species is one listed by federal or state agencies as threatened or endangered; considered to be of special-status by one or more special interest groups, such as the California Native Plant Society (CNPS) (e.g., List 1, 2, 3, and 4 Plant Species); or is included on the County's Sensitive Plant list (Group A, B, C, or D Listed Plants).

Special-status plant species detected within the Preserve (Figure 10) include ashy spike-moss (*Selaginella cinerascens*), San Diego thornmint (*Acanthomintha ilicifolia*), California adder's tongue (*Ophioglossum californicum*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), Coulter's saltbush (*Atriplex coulteri*), Parish's brittle scale (*Atriplex parishii* var. *parishii*), southern tarplant (*Centromadia parryi* ssp. *australis*), Palmer's sagewort (*Artemisia palmeri*), graceful tarplant, rush chaparral-star (*Xanthisma junceum*), small-flowered bindweed, San Diego milkvetch (*Astragalus oocarpus*), Engelmann oak (*Quercus engelmannii*), California large-leaf filaree, vernal barely (*Hordeum intercedens*), and Ramona spineflower (*Chorizanthe leptotheca*).

Ashy Spike-Moss (*Selaginella cinerascens*)

CNPS List 4, San Diego County List D

Ashy spike-moss is typically found in undisturbed chaparral and Diegan coastal sage scrub (Reiser 1994). The species prefers undisturbed soils (Reiser 1994). This species is a common understory element within the chaparral habitats containing exposed rock outcrops and open soils in the NE and NW portions of the Preserve. Due to the abundance of this species within the Preserve, point locations were not mapped.

San Diego Thornmint (*Acanthomintha ilicifolia*)

Federally Threatened, State Endangered, CNPS List 1B, San Diego County List A, North County Plan Covered Species, North County Plan subject to the Narrow Endemic Policy

San Diego thornmint is an annual wildflower typically found on friable clay soils in grassy openings within chaparral. A small population of San Diego thornmint was observed within the nonnative grassland habitat south of the Ramona Airport in the SE portion of the Preserve (Figure 10). This population occurs on heavy, friable clay soils. Approximately 30 individuals of this species were observed in 2009. It is assumed that the population is typically larger in years of average to above average rainfall.

California Adder's Tongue (*Ophioglossum californicum*)

CNPS List 4, San Diego County List D

California adder's tongue is a rhizomatous herb closely associated with vernal pools, seeps, and vernal moist locales within open chaparral and grasslands (Reiser 1994, CNPS 2009). Within the Preserve, this species was found in a moist swale in the NE portion.

Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)**CNPS List 4, San Diego County List D**

Southwestern spiny rush is a rhizomatous herb found in seeps, meadows, salt marsh, and coastal dunes, usually occurring in wetlands, but occasionally found in non-wetlands (CNPS 2009). Potential habitat includes areas where water can pond along substantial seasonal drainages (Reiser 1994). Southwestern spiny rush was observed within an ephemeral drainage in the NE portion (Figure 10).

Coulter's Saltbush (*Atriplex coulteri*)**CNPS List 1B, San Diego County List A, North County Plan Covered Species and subject to the Narrow Endemic Policy**

Coulter's saltbush is a perennial herb typically found on coastal bluffs and dunes and in coastal scrubs but can occur in valley and foothill grasslands with alkaline or clay soils (Reiser 1994, CNPS 2009). This species was found on alkali flats within the SE portion.

Parish's Brittlescale (*Atriplex parishii* var. *parishii*)**CNPS List 1B, San Diego County List A, North County Plan Covered Species and subject to the Narrow Endemic Policy**

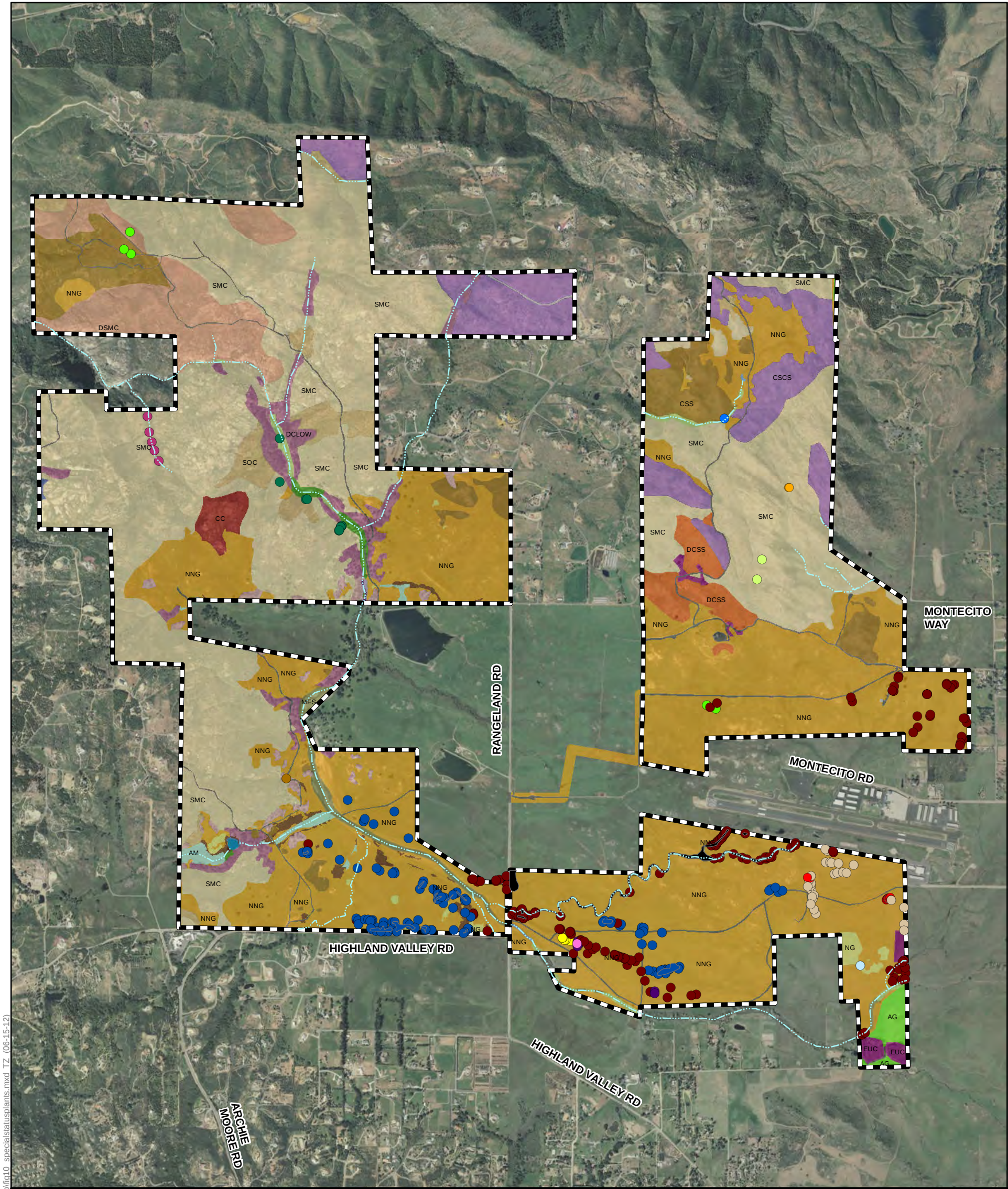
Parish's brittlescale is an annual herb found in playas or vernal pools associated with alkali sinks and freshwater wetlands (CNPS 2009). This species was found on alkali flats within the SE portion.

Southern Tarplant (*Centromadia parryi* ssp. *australis*)**CNPS List 1B, San Diego County List A, North County Plan Covered Species and subject to the Narrow Endemic Policy**

Southern tarplant is an annual herb typically associated with marshes, valley grassland, vernal pools, and other alkaline locations and is usually found in areas surrounded by nonnative weeds (CNPS 2009). On the Preserve, this species was dominant within the swale and vernal pool features on the SW, SE, and NE portions.

Palmer's Sagewort (also known as San Diego Sagewort) (*Artemisia palmeri*)**CNPS List 4, San Diego County List D**

Palmer's sagewort is a deciduous shrub typically found along creeks and drainages near the coast and inland within mesic chaparral conditions (Reiser 1994, CNPS 2009). On the Preserve, this species was found along Santa Maria Creek within the NW portion.



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Legend

- Preserve Boundary

Streams & Rivers

Southern Tarplant

Graceful Tarplant

Sensitive Plant Species

 - California Large-Leaf Filaree
 - California's Adder's Tongue
 - Coulter's Saltbush
 - Engelmann Oak
 - Graceful Tarplant

Vegetation Communities

 - 11200 Disturbed Wetland (DW)
 - 11300 Disturbed Habitat (DH)
- Palmer's Sagewort
 - Parish's Brittlegrass
 - Ramona Spineflower
 - Rush Chaparral-Star
 - San Diego Milkvetch
 - San Diego Thornmint
 - Small-Flower Bindweed
 - Southern Tarplant
 - Southwestern Spiny Rush
 - Vernal Barley

Vegetation Communities

 - 11200 Disturbed Wetland (DW)
 - 11300 Disturbed Habitat (DH)
- 12000 Developed Lands (DEV)
 - 13200 Non-Vegetated Channel (NVC)
 - 18000 Agriculture (AG)
 - 32500 Diegan Coastal Sage Scrub (CSS)
 - 32500 Disturbed Diegan Coastal Sage Scrub (DCSS)
 - 37120 Disturbed Southern Mixed Chaparral (DSMC)
 - 37120 Southern Mixed Chaparral (SMC)
 - 37200 Chamise Chaparral (CC)
 - 37900 Scrub Oak Chaparral (SOC)
 - 37G00 Coastal Sage-Chaparral Scrub (CSCS)
 - 42110 Valley Needlegrass Grassland (NG)
 - 42130 Saltgrass Grassland (SGG)
 - 42200 Non-Native Grassland (NNG)
- 52300 Alkali Marsh (AM)
 - 52440 Emergent Wetland (EMWE)
 - 61310 Southern Coast Live Oak Riparian Forest (SCLORF)
 - 63310 Mule Fat Scrub (MFS)
 - 63320 Southern Willow Scrub (SWS)
 - 63320 Southern Willow Scrub - Disturbed (SWS-D)
 - 64100 Open Water (OW)
 - 71161 Open Coast Live Oak Woodland (OCLOW)
 - 71162 Dense Coast Live Oak Woodland (DCLOW)
 - 79100 Eucalyptus Woodland (EUC)
 - 79100 Non-Native Woodland (NNW)

Source: ESRI Imagery, 2010.

0 500 1,000 2,000 Feet
1" = 2,000"



Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*)**CNPS List 4, San Diego County List D**

Graceful tarplant is an annual herb that is typically found within annual and perennial grasslands but can occur within coastal sage scrub and chaparral (Reiser 1994, CNPS 2009). Within the Preserve, this species was found frequently in areas of nonnative grassland on the SE and SW portions.

Rush Chaparral-Star (*Xanthisma junceum*) (also known as *Machaeranthera juncea*)**CNPS List 4, San Diego County List D**

Rush chaparral-star is a perennial herb associated with low growing chamise chaparral and Diegan sage scrub communities (CNPS 2009). It prefers exposed locales with rocky substrates (Reiser 1994). On the Preserve, this species was found on the northern slopes of the NW portion.

Small-Flower Bindweed (also known as Small-Flowered Morning-Glory) (*Convolvulus simulans*)**CNPS List 4, San Diego County List D**

Small-flower bindweed is an annual herb typically found on clay soils devoid of shrubs, and also in openings in chaparral, sage scrub, and grassland (Reiser 1994, CNPS 2009). On the Preserve, it was found in openings with clay soils in nonnative grassland on the SE portion.

San Diego Milkvetch (*Astragalus oocarpus*)**CNPS List 1B, San Diego County List A**

San Diego milkvetch is a perennial herb typically found at the edges of cismontane chaparral along the periphery of meadows. Other plant species associated with San Diego milkvetch include manzanita (*Arctostaphylos* sp.), chamise, and other woody shrubs. On the Preserve, San Diego milkvetch was observed on the NW portion on the periphery of the coast live oak woodland overstory. This population represents a significant western extension of the known range of San Diego milkvetch. Typically, San Diego milkvetch occurs within the eastern portion of San Diego County (near Ranchita or McCain Valley) at elevations higher than the Preserve.

Engelmann Oak (*Quercus engelmannii*)**CNPS List 4, San Diego County List D, North County Plan Covered Species**

Engelmann oak is commonly found in the foothills between 152 and 1,219 meters (500 and 4,000 feet). Growing to 12 meters (40 feet) tall, this tree has flat, grey-blue-green leaves and tolerates less water than coast live oak. Larger oaks are sometimes found growing in savannah grasslands but it may also occur as a shrubby element within chaparral. Engelmann oaks are still relatively abundant throughout their range in southern California. One Engelmann oak occurs on the SW portion.

California Large-Leaf Filaree (*California macrophylla*)

CNPS List 1B, San Diego County List B

California large-leaf filaree is an annual herb found in cismontane woodlands and valley and foothill grasslands in open habitat on friable clay soils (CNPS 2009). On the Preserve, several populations were observed in the clay soils on the SE portion.

Vernal Barley (*Hordeum intercedens*)

CNPS List 3, San Diego County List C

Vernal barley is an annual grass that typically occurs in coastal dunes, coastal scrub, valley and foothill grassland, and vernal pools. On the Preserve, vernal barley was observed in alkali soils on the SE portion.

Ramona Spineflower (*Chorizanthe leptotheca*)

CNPS List 4, San Diego County List D

Ramona spineflower is a small annual that is found within dry openings in chamise chaparral, coastal sage scrub, or lower montane coniferous forest (Reiser 1994, CNPS 2009). Species were observed on the south-facing slopes of the NE portion in the openings in the burned chaparral.

3.2.3 Rare, Threatened, or Endangered Plant Species not Observed but with High Potential to Occur

Additional information on the species listed below can be found in the Baseline Biological Survey Report (Appendix A).

Payson's Caulanthus (also known as Payson's Jewelflower) (*Caulanthus simulans*)

CNPS List 4, San Diego County List D

Payson's caulanthus is an annual herb associated with chaparral and coastal sage scrub communities (CNPS 2009). This species was not observed on the Preserve in 2009 but is considered to have a high potential to occur on site due to the abundance of suitable habitat on site.

Spreading Navarretia (*Navarretia fossalis*)

Federally Threatened, CNPS List 1B, San Diego County List A, MSCP Covered Species (North and South County)

Spreading navarretia is a wetland plant that is typically found in chenopod scrub, shallow freshwater marshes, playas, and vernal pools. Spreading navarretia was documented just east of the Preserve in 2005 (CNDDDB 2009), and suitable habitat for this special-status species occurs throughout a large portion of the grassland habitats. Designated critical habitat for spreading navarretia occurs in the northeastern area of the SE portion. The 2009 rainy season was below

average and this species was not detected during the focused rare plant surveys. The 2010 rainy season was normal to above average. Therefore, updated focused surveys were initiated in March 2010. No individuals of this species were detected within the Preserve during the 2010 surveys. Spreading navarretia is covered by the Vernal Pools of Southern California Recovery Plan (USFWS 1998).

Little Mousetail (*Myosurus minimus*)

CNPS List 3, San Diego County Group C

Little mousetail typically grows in the deeper portions of vernal pool basins (Reiser 1994). This species sprouts immediately after the surface water has evaporated, and the stature of plants and population densities are strongly tied to yearly rainfall levels (Reiser 1994). Little mousetail is considered to have a high potential to occur in the vernal pools and vernal swales that occur within the lower grasslands. This species has been historically documented in the Ramona grasslands. Updated focused surveys for this species were initiated in March 2010. No individuals of this species were detected within the Preserve during the 2010 surveys.

Delicate Clarkia (also known as Campo Clarkia) (*Clarkia delicata*)

CNPS List 1B, San Diego County Group A

Delicate clarkia is an annual wildflower that is typically found on the periphery of oak woodland habitats and within cismontane chaparral. High density populations of delicate clarkia are known to occur immediately west of the Preserve. Due to the presence of suitable habitat on site and Preserve's proximity to extant populations, delicate clarkia has a high potential to occur on site.

3.2.4 Nonnative and/or Invasive Plant Species

There were 40 California Invasive Plant Council (Cal-IPC) listed plants identified during the field surveys. These invasive nonnative plants include: Artichoke thistle (*Cynara cardunculus*), African brass-buttons (*Cotula coronopifolia*), annual beard grass (*Polypogon monspeliensis*), Bermuda grass (*Cynodon dactylon*), bermuda-buttercup (*Oxalis pes-caprae*), black mustard (*Brassica nigra*), broad-leaved peppergrass (*Lepidium latifolium*), castor-bean (*Ricinus communis*), curly dock (*Rumex crispus*), cut-leaved geranium (*Geranium dissectum*), European olive (*Olea europaea*), field charlock (*Sinapis arvensis*), field mustard (*Brassica rapa*), fountain grass (*Pennisetum setaceum*), foxtail chess, giant reed (*Arundo donax*), glaucous foxtail barley (*Hordeum murinum*), greater periwinkle (*Vinca major*), hyssop loosestrife (*Lythrum hyssopifolium* L.), Italian ryegrass (*Lolium multiflorum*), Italian thistle (*Carduus pycnocephalus*), Kentucky bluegrass (*Poa pratensis*), Kikuyu grass (*Pennisetum clandestinum*), london rocket (*Sisymbrium irio*), Mediterranean barley (*Hordeum marinum*), Mexican fan palm (*Washingtonia robusta*), radish (*Raphanus sativus*), red-stemmed filaree (*Erodium cicutarium*), ripgut brome (*Bromus diandrus*), river red gum (*Eucalyptus camaldulensis*), short-pod mustard (*Hirschfeldia incana*), slender oat (*Avena barbata*), smooth cat's-ear (*Hypochaeris glabra*), soft chess (*Bromus hordeaceus*), tocalote (*Centaurea melitensis*), toothed medick (*Medicago polymorpha*), Tournefort's mustard (*Brassica tournefortii*), tree tobacco (*Nicotiana glauca*), white horehound (*Marrubium vulgare*), wild oat (*Avena fatua*), and woolly mullein (*Verbascum thapsus*).

During the 2009 baseline surveys, several occurrences of these species were documented. In addition, several offsite locations were noted but not shown on Figure 11. These offsite occurrences

represent potential vectors by which these invasive plants can re-enter the Preserve, and consideration should be made in managing these populations as part of Preserve maintenance.

Six of the above listed invasive nonnative plants are described below because they were identified as the principle target species with top priority in the Vegetation Management Plan (ICF 2011), previously observed on the Preserve and have been treated, or observed in 2009 and 2010 within or adjacent to the Preserve, and can be readily controlled or removed.

Artichoke thistle (*Cynara cardunculus*) is a perennial herbaceous weed supporting very large basal rosettes of leaves, sometimes up to 4 feet across, and bright purple flowers on flowering stalks that can reach up to 5 feet in height. It is commonly associated with disturbed sites, particularly grazed sites within coastal influences. It does well in clay soils, and as a result is a threat to the endangered San Diego thornmint.

Artichoke thistle will germinate in mid-winter, but can still grow from seeds well into June or July depending upon rainfall. It usually flowers in mid to late spring. Its most rapid growth is during cool wet months, and summer heat tends to slow growing. It can obtain densities of over 20,000 plants per acre (Thomsen et al. 1986). Seeds can last up to 5 years in the soil.

Artichoke thistle has been identified as the invasive plant with the greatest extent on the Preserve. Its negative effects are both direct and indirect. By its dense stands of robust and sharp spines, it limits wildlife movement. Likewise, its dense stands completely shade out native plants as well as usurping food and water from natives.

Because of its deep tap root, and its ability to resprout from its underground parts, control efforts are ongoing. For this reason, grazing, mowing, or prescribed fire are generally ineffective in the long run. However, prescribed fire can be effective at reducing the aboveground biomass, making herbicide treatments more efficient and effective.

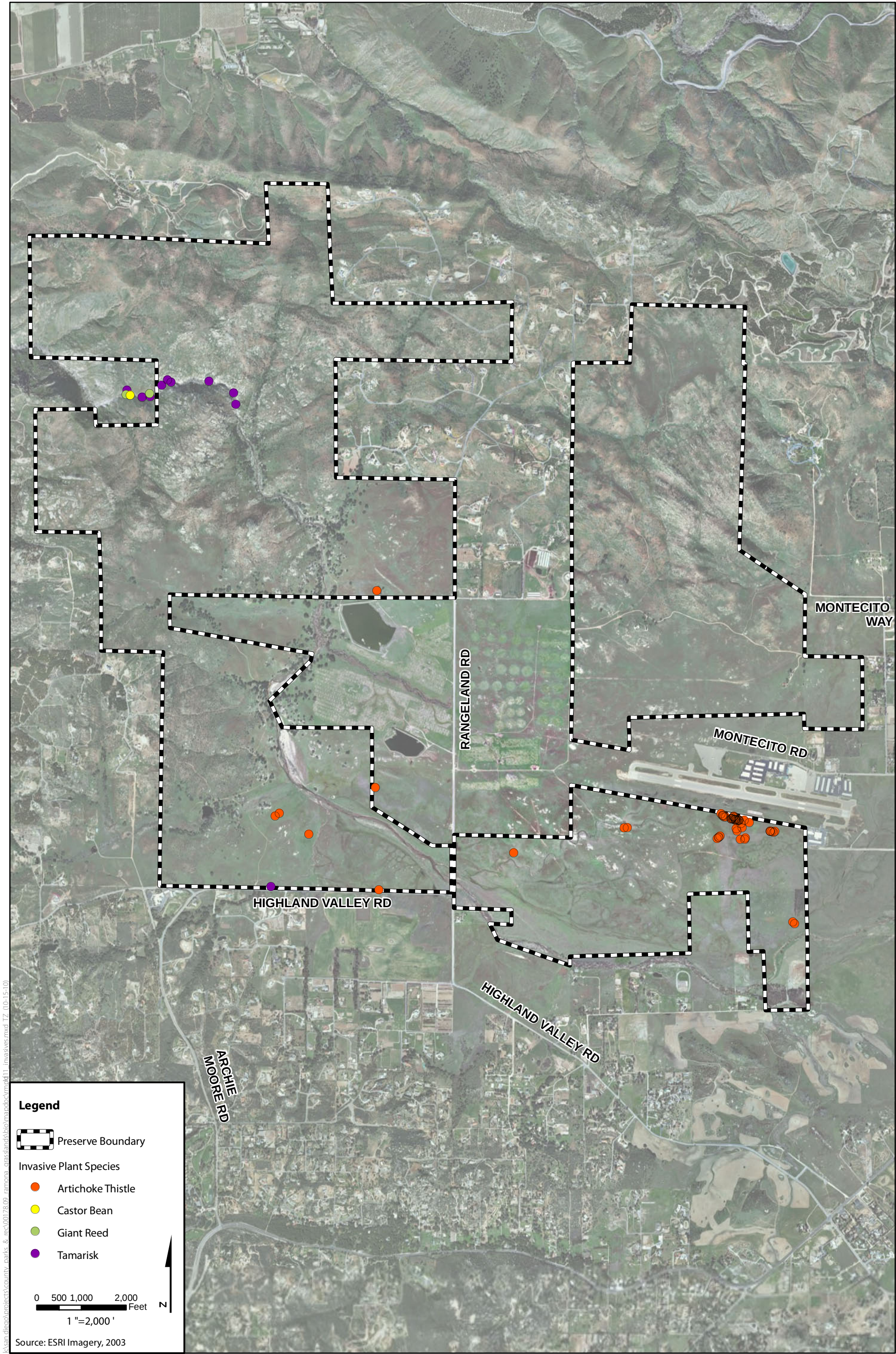
Artichoke thistle is a moderately rated invasive by the California Invasive Plant Council (Cal-IPC). It occurs in several locations in the SW and SE portions. Total numbers of individuals observed on site are approximately 59, with the largest grouping consisting of 38 individuals.

Giant reed (*Arundo donax*) is a highly invasive member of the grass family that has spread throughout the wetlands of the western United States. Although not reproducing by seeds, giant reed rapidly spreads through riparian areas by vegetative means. For instance, pieces of stalks that break off and then become embedded into soil will grow a new plant. If allowed to obtain sufficient height, the tall stems will arch-over and when touching the ground will grow. Often it is introduced into areas as illegally dumped green waste.

Giant reed provides little, if any, habitat for native species, uses roughly three times the amount of water as native species, usurps habitat of native species, can choke waterways during flood events causing infrastructure damage, and can rapidly spread wild fires.

Giant reed stores its energy underground, and so merely cutting it down will not eradicate it. It grows best during the spring and early summer months when temperatures begin to rise and soils are still relatively moist. During the winters giant reed is still active, but grows much slower. It will grow exceedingly rapidly following a wild fire.

Giant reed is a high rated invasive by Cal-IPC. It was only detected off site, just west of the NW portion along Santa Maria Creek and is shown in Figure 11.



Tamarisk (*Tamarix ramosissima*) is one of the most well-known and extremely invasive species found throughout the world. *T. ramosissima* is one of five invasive tamarisk species known in California (Baum 1978 as reported in UC Press 2000). Native to central Asia, it is thought to have been introduced by the Spaniards. It is generally a small tree, which produces feathery pink inflorescences with copious numbers of seeds. It is reported that one plant can produce up to 500,000 seeds (DiTomaso 1996). The thin leaves have salt glands, and it is often possible to observe salt crystals on them. It can reproduce from either seeds or vegetatively from broken-off pieces of leaves and stems.

The effects of tamarisk are many, and include the changing of soil chemistry by the release of salt as the leaves degrade. This in turn can inhibit germination and growth of many plants (Anderson 1996). It re-sprouts quickly following fires, and as a result, can quickly dominate riparian habitats (UC Press 2000).

Tamarisk is a phreatophyte. These plants quickly send down a deep tap root to the water table, at which point secondary roots spread laterally (UC Press 2000). As a result, tamarisk has significant effects on local water resources. It has been reported that in the Colorado Desert, within a few weeks of the removal of tamarisk from a desert wash, open water ponds had become established.

RECON (2005) found several places on Santa Maria Creek where tamarisk had become established. Most of these sites were treated with 2% glyphosate, but apparently some were not because of property owner concerns. Similarly, Kelly and Associates (2007) reported encountering and treating 419 tamarisk individuals along Santa Maria Creek. The same area not treated by RECON was not treated by Kelly and Associates. ICF found tamarisk persisting in Santa Maria Creek during their 2009 field surveys, including some areas in the extreme northwestern corner of the Preserve.

Perennial pepperweed (*Lepidium latifolium*) is a perennial herb that ranges from 3 to 8 feet in height. Also referred to as broad-leaved peppergrass, it often forms dense colonies, especially in disturbed riparian areas. Originally from western Asia, it is now found across Europe and as far east as the Himalayas. In the western hemisphere, it is found throughout the United States and Mexico, and was introduced into California in 1936 (UC Press 2000). It is usually found in wetter places, such as seeps and riparian areas.

Extremely invasive, perennial pepperweed reproduces quickly from either seeds or pieces of underground stems (rhizomes) to form thick stands, thereby usurping habitat for native species. It has been reported that it has appropriated habitat for several sensitive plant species (Skinner and Pavlik 1994), as well as habitat for some bird and rodent species as well.

Two patches of perennial pepperweed historically occurred at the airport (RECON 2005). These patches were sprayed to prevent them from infesting Santa Maria Creek. Kelly and Associates reported finding 0.008 acre of pepperweed in 2007 and also detected pepperweed in the Preserve in 2009 and 2010. These patches were also sprayed. These sightings are not shown on Figure 11.

Castor bean (*Ricinus communis*) is a commonly encountered invasive shrub that can reach 3 to 15 feet in height. It is easily recognized by its large, palmately-lobed leaves. A native of Asia and Africa, it is most often found growing in wet areas, especially along drainage ditches and near highway culverts. Its seeds are exceedingly poisonous, and as few as two seeds ingested can be fatal to humans (Cooper and Johnson 1984). It is spread by seeds, and will re-sprout if cut.

Castor bean was observed in 2009 growing just outside the extreme northwest boundary of the Preserve along Santa Maria Creek.

Milk thistle (*Silybum marianum*) is a common invasive species in disturbed areas, especially pastures (Cal-IPC 2006). It is a perennial shrub, which is native to the Mediterranean area. Typical of other thistles, milk thistle produces a basal rosette of large leaves, sometimes 3 feet across which show white marbling. The red-flowered stalks can obtain a height of up to 10 feet (Cal-IPC 2006). It produces copious numbers of seeds. It has been estimated that it can produce up to 1.4 million seeds per acre, and a single plant can produce over 6,000 seeds (Cal-IPC 2006). Milk thistle has been widely used for various medicinal purposes for thousands of years, including liver disease and cancer (UMMC 2010). However, milk thistle concentrates nitrates and can be poisonous to livestock (NWCB 1989).

Similar to artichoke thistle, milk thistle spreads across the disturbed landscape, usurping habitat and resources of native species. Although not considered an extremely aggressive invader in California (Cal-IPC 2006), it does have the potential to significantly alter the landscape.

RECON (2005) indicated many places along Santa Maria Creek that were infested by milk thistle. At that time, all aboveground biomass was removed. However, this removal occurred after the plants had already set seed. Kelly and Associates (2007) also found significant stands of milk thistle in the same locations along Santa Maria Creek. This indicates the necessity of removing the plants before they seed. Kelly and Associates (2007) indicated that control efforts were performed on about 2,200 plants, but also indicated there were some areas that were not treated. In 2010, Kelly and Associates identified milk thistle in the SW portion of the Preserve (associated with the Santa Maria Creek crossing). This sighting is not shown on Figure 11.

3.3 Wildlife Species

Wildlife inventories detected 216 species at the Preserve. The Baseline Biological Survey Report (Appendix A) includes the complete list of all plant species observed during the surveys.

3.3.1 Wildlife Species Present

Invertebrates

There were 52 species of invertebrates including butterflies, skippers, moths, spiders, bees, beetles, worms, scorpions, and centipedes identified during the 2009 baseline surveys of the Preserve (Appendix A). Species were observed during focused butterfly diversity surveys, herpetological pitfall trapping, and other active surveys. In addition, San Diego fairy shrimp (*Branchinecta sandiegonensis*) is known to occur in the vernal pools on the SE portion (CBI 2007) and the SW portion (Mooney & Associates 2005). No focused surveys were conducted for fairy shrimp in 2009. However, fairy shrimp surveys were conducted in 2010 in association with the updated surveys for spreading navarretia and little mousetail. The 2010 wet season fairy shrimp surveys confirmed the presence of San Diego fairy shrimp in some of the vernal pools located in the SE portion of the Preserve.

Butterflies

Butterfly species observed on the Preserve during the 2009 baseline surveys include: Anise swallowtail (*Papilio zelicaon*), western tiger swallowtail (*Papilio rutulus*), pale swallowtail (*Papilio eurymedon*), checkered (common) white (*Pontia protodice*), desert orangetip (*Anthocharis cethura*), Pacific (Sara's) orangetip (*Anthocharis sara*), orange sulfur (*Colias eurytheme*), Hartford's sulfur (*Colias harfordii*), dainty sulfur (*Nathalis iole*), westerngreen (perplexing) hairstreak (*Callophrys affinis perplexa*), brown elfin (*Callophrys augustinus*), western pygmy-blue (*Brephidium exile*), western tailed-blue (*Everes amyntula*), silvery blue (*Glaucopsyche lygdamus*), Acmon blue (*Icaricia acmon*), Behr's metalmark (*Apodemia mormo virgulti*), mourning cloak (*Nymphalis antiopa*), painted lady (*Vanessa cardui*), west coast lady (*Vanessa annabella*), common buckeye (*Junonia coenia*), sleepy duskywing (*Erynnis brizo*), funereal duskywing (*Erynnis funeralis*), and northern white-skipper (*Heliopetes ericetorum*).

No Quino or any other special-status butterfly species was observed on the Preserve. Quino has moderate potential to occur based on the presence of primary host plants (dot-seed plantain) and secondary host plants (purple owl's-clover, dark-tip bird's beak, and Chinese houses), and proximity to recently documented Quino. The patches of dot-seed plantain generally occurred in areas with cryptogamic soil crusts and large rock outcrops. During the 2009 flight season, Quino were documented closer than the historical sighting of approximately 6 miles. Quino were observed approximately 4.3 miles southeast of the Preserve on the Rancho Cañada Preserve (formerly Monte Vista Ranch) south of the intersection of San Vicente Road and Wildcat Canyon Road (USFWS 2009).

Amphibians

Six amphibian species were detected in the Preserve during the 2009 baseline surveys including three species caught in pitfall traps and observed during active surveys: western toad, Pacific tree frog, and western spadefoot; and three species only observed during active surveys: arroyo toad (*Anaxyrus* (formally *Bufo*) *californicus*), California chorus frog (*Pseudacris cadaverina*), and bullfrog (*Rana catesbeiana*). Both western spadefoot and arroyo toad are considered special-status species. Bullfrog is considered an invasive nonnative species.

Adult and tadpole arroyo toad were observed within Santa Maria Creek west of Rangeland Road during focused surveys in March and April, 2009. Historically, this species is known to breed within Santa Maria Creek on the western portions of the Preserve. Surveys conducted in 2009 confirmed breeding within Santa Maria Creek within the western portions. These sections of the creek contain high quality habitat as defined by the habitat assessment protocol detailed in the Marine Corps Base Camp Pendleton Arroyo Toad Monitoring Protocol (Atkinson et al 2002). This model uses three physical characteristics to assess the potential to support breeding arroyo toads: (1) channel substrate type being predominantly composed of sand, (2) the presence of flat sandy terraces immediately adjacent to channel, and (3) having a watercourse of braided channels.

The western spadefoot adult was captured adjacent to Santa Maria Creek during the April sampling. Adult western spadefoots were also observed during arroyo toad surveys in Santa Maria Creek (both east and west of Rangeland Road). Additionally, western spadefoot tadpoles were observed in a small pool south of Santa Maria Creek in the southeastern corner of the Preserve. This species is presumed to be breeding in pools or streams of or in proximity to Santa Maria Creek within the Preserve. Other streams and isolated pools (including vernal pools) within the Preserve and adjacent to the Preserve are presumed to provide additional breeding habitat.

Adult and juvenile bullfrogs were detected both in Santa Maria Creek west of Rangeland Road and in the pond on the SW portion of the Preserve. This species was abundant and is a threat to native wildlife in the immediate vicinity.

Reptiles

There were 21 reptile species detected in the Preserve during the 2009 baseline surveys including: southern alligator lizard (*Elgaria multicarinata*), San Diego horned lizard (*Phrynosoma coronatum blainvillii*), granite spiny lizard (*Sceloporus orcutti*), western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), Gilbert's skink (*Eumeces gilberti*), Coronado skink (*Eumeces skiltonianus interparietalis*), Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), coastal western whiptail (*Cnemidophorus tigris stejnegeri*), granite night lizard (*Xantusia henshawi*), coastal rosy boa (*Charina trivirgata roseofusca*), common kingsnake (*Lampropeltis getula*), coachwhip (*Masticophis flagellum*), striped racer (*Masticophis lateralis*), gopher snake (*Pituophis catenifer*), longnose snake (*Rhinocheilus lecontei*), two-striped garter snake (*Thamnophis hammondi hammondi*), speckled rattlesnake (*Crotalus mitchellii*), western rattlesnake (*Crotalus oregonus*), red diamond rattlesnake (*Crotalus ruber ruber*), and night snake (*Hypsiglena torquata*).

Birds

There were 100 bird species detected during the baseline surveys. These included year-round residents, winter-only species, breeding species that migrate to the Neotropics, and species that are strictly migratory through the Preserve, neither breeding nor wintering there. Some species detected during the baseline surveys include: ruddy duck (*Oxyura jamaicensis*), California quail (*Callipepla californica*), great blue heron (*Ardea herodias*), mourning dove (*Zenaidura macroura*), greater roadrunner (*Geococcyx californianus*), lesser nighthawk (*Chordeiles acutipennis*), common poorwill (*Phalaenoptilus nuttallii*), white-throated swift (*Aeronautes saxatalis*), Anna's hummingbird (*Calypte anna*), Nuttall's woodpecker (*Picoides nuttallii*), northern flicker (*Colaptes auratus*), Pacific-slope flycatcher (*Empidonax difficilis*), black phoebe (*Sayornis nigricans*), western kingbird (*Tyrannus verticalis*), Hutton's vireo (*Vireo huttoni*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), northern rough-winged swallow (*Stelgidopteryx serripennis*), Bewick's wren (*Thryomanes bewickii*), blue-gray gnatcatcher (*Polioptila caerulea*), western bluebird (*Sialia mexicana*), phainopepla (*Phainopepla nitens*), orange-crowned warbler (*Vermivora celata*), yellow-rumped warbler (*Dendroica coronata*), California towhee (*Pipilo crissalis*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), black-headed grosbeak (*Pheucticus melanocephalus*), tricolored blackbird (*Agelaius tricolor*), western meadowlark (*Sturnella neglecta*), and lesser goldfinch (*Carduelis psaltria*). A complete list of bird species detected during the baseline surveys is provided in Appendix A to this report.

The Preserve has a great diversity of raptors (birds of prey), including 11 observed raptor species: turkey vulture (*Cathartes aura*), Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), ferruginous hawk (*Buteo regalis*), golden eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius*), barn owl (*Tyto alba*), western screech-owl (*Megascops kennicottii*), great horned owl (*Bubo virginianus*), and burrowing owl (*Athene cunicularia hypugae*). These birds are using the Preserve for foraging and some species breed on site. One active Cooper's hawk nest was observed in the eucalyptus trees along the eastern edge of the SE portion of the Preserve. One active red-tailed hawk nest was observed along the western edge of the NE portion. American kestrels were observed using at least one artificial nest box along

the southern fence line of the SE portion. Several stick nests were observed around the Preserve. The large number of American crows and common ravens that roost in the eucalyptus trees along the eastern and southeastern corner of the SE portion appear to have discouraged many raptors from using these areas. Those stands of trees historically have supported a large number of raptor nests with diverse species (WRI 2007). The red-shouldered hawk, golden eagle, barn owl, and western screech-owl can all be assumed to be nesting somewhere on the Preserve.

Mammals

A complete list of mammal species observed within the Preserve during the 2009 surveys is included in the faunal list of the Baseline Biological Survey Report (Appendix A).

Small Mammals

In total, 12 small mammal species were recorded at the Preserve during small mammal trapping and other surveys. Species included California ground squirrel (*Spermophilus beecheyi nudipes*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), Stephens' kangaroo rat, western harvest mouse (*Reithrodontomys megalotis*), American deer mouse (*Peromyscus maniculatus gambelii*), Dulzura kangaroo rat (*Dipodomys simulans*), northern Baja mouse (*Peromyscus fraterculus*), San Diego desert woodrat (*Neotoma lepida intermedia*), California mouse (*Peromyscus californicus insignis*), Botta's pocket gopher (*Thomomys bottae*), California vole (*Microtus californicus*), and Dulzura pocket mouse (*Chaetodipus californicus femoralis*).

The trapping results indicate that the Preserve has good abundance and species diversity of small mammals. One goal of the small mammal trapping was to determine if Stephens' kangaroo rats were expanding into adjacent habitats since the 2007 Witch Fire. The trapping program showed that this species has expanded its use of the Preserve as Stephens' kangaroo rat was captured west of Santa Maria Creek in the SW portion of the Preserve.

Medium and Large Mammals

A total of 11 mammal species were detected in the Preserve through direct observation and tracks and sign surveys. Species included: Virginia opossum (*Didelphis virginiana*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), domestic dog (*Canis familiaris*), common raccoon (*Procyon lotor*), long-tailed weasel (*Mustela frenata latirostra*), striped skunk (*Mephitis mephitis holzneri*), bobcat (*Lynx rufus*), domestic horse (*Equus caballus*), southern mule deer (*Odocoileus hemionus fuliginata*), and domestic cattle (*Bos taurus*).

Movement of larger animals appeared to be concentrated along easily traveled routes with good visibility such as roads, ridges, and along Santa Maria Creek. Most sign of smaller animals was within natural communities with cover, especially chaparral. Southern mule deer was visually observed in the NW portion of the Preserve. There was not as much deer activity as would be expected in a Preserve this size.

Bats

A total of 14 bat species were detected during the three seasons of bat monitoring (spring, summer, and fall of 2009). The bat species most frequently detected were Yuma myotis (*Myotis yumanensis*), Mexican free-tailed bat (*Tadarida brasiliensis*), canyon bat (*Parastrellus hesperus*), California myotis (*Myotis californicus*), small-footed myotis (*Myotis ciliolabrum*), big brown bat (*Eptesicus fuscus*), and

pocketed free-tailed bat (*Nyctinomops femorosaccus*). Species detected infrequently consisted of long-eared myotis (*Myotis evotis*), western yellow bat (*Lasiurus xanthinus*), Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*), big free-tailed bat (*Nyctinomops macrotis*), western mastiff bat (*Eumops perotis*), and western red bat (*Lasiurus blossevillii*). The Preserve's habitats are fairly diverse and contain features important to bats in the southern California landscape such as riparian vegetation, oak woodland, and scrub vegetation.

3.3.2 Rare, Threatened, or Endangered Wildlife Species Present

This section discusses special-status wildlife species observed at the Preserve (Figure 12). A special-status wildlife species is one listed by federal or state agencies as threatened or endangered, is included on the County's Sensitive Animal List (Group 1 or 2 Species), or is covered under the MSCP. A total of 39 special-status wildlife species were detected at the Preserve. Each of these 39 species is addressed below in more detail. Additional information on the species listed below (including sampling locations where captured) can be found in the Baseline Biological Resources Evaluation (Appendix A).

Invertebrates

San Diego Fairy Shrimp (*Branchinecta sandiegonensis*)

Federally Endangered, San Diego County Group I, North County Plan Covered Species, Narrow Endemic

The San Diego fairy shrimp is a small freshwater crustacean with compound eyes and 11 pairs of legs (USFWS 1998). These small (around 0.5 inch mature) crustaceans can be distinguished from other fairy shrimp by the shape of the second antenna (males) or the length and shape of the ovisac and the presence of paired dorsilateral spines. Fairy shrimp are presumed to feed on algae, bacteria, protozoa, rotifers, and bits of organic matter (USFWS 2003). San Diego fairy shrimp is generally found in smaller, shallow (2 to 12 inches) vernal pools and ephemeral depressions (USFWS 1997). This species can also occur in road ruts and ditches with suitable conditions. This species has not been observed in riverine waters, marine waters, or other permanent bodies of water (USFWS 1998). Fairy shrimp are usually observed in the winter and early spring when surface water persists in vernal pools and other depressions.

The species hatches and matures in as little as 7 days, but may take 14 days, depending on water temperature (USFWS 1997). The eggs (cysts) are either dropped to the pool bottom or remain in the female until she dies and sinks. The cysts are capable of withstanding a prolonged drying period and temperature extremes. When the pool refills, that same season or subsequent seasons, some or all of the eggs hatch. Egg banks in the soil may be composed of the eggs from several years of breeding (USFWS 1997).

San Diego fairy shrimp are found in vernal pools and other depressions in coastal southern California south to northwestern Baja California, with San Diego County supporting the largest number of remaining occupied vernal pools (USFWS 2000a). The San Diego fairy shrimp is found in San Diego County from Mexico north to MCB Camp Pendleton; inland to Otay Mesa, Proctor Valley, Marine Corps Air Station (MCAS) Miramar, and Ramona. San Diego fairy shrimp is covered by the Vernal Pools of Southern California Recovery Plan (USFWS 1998).

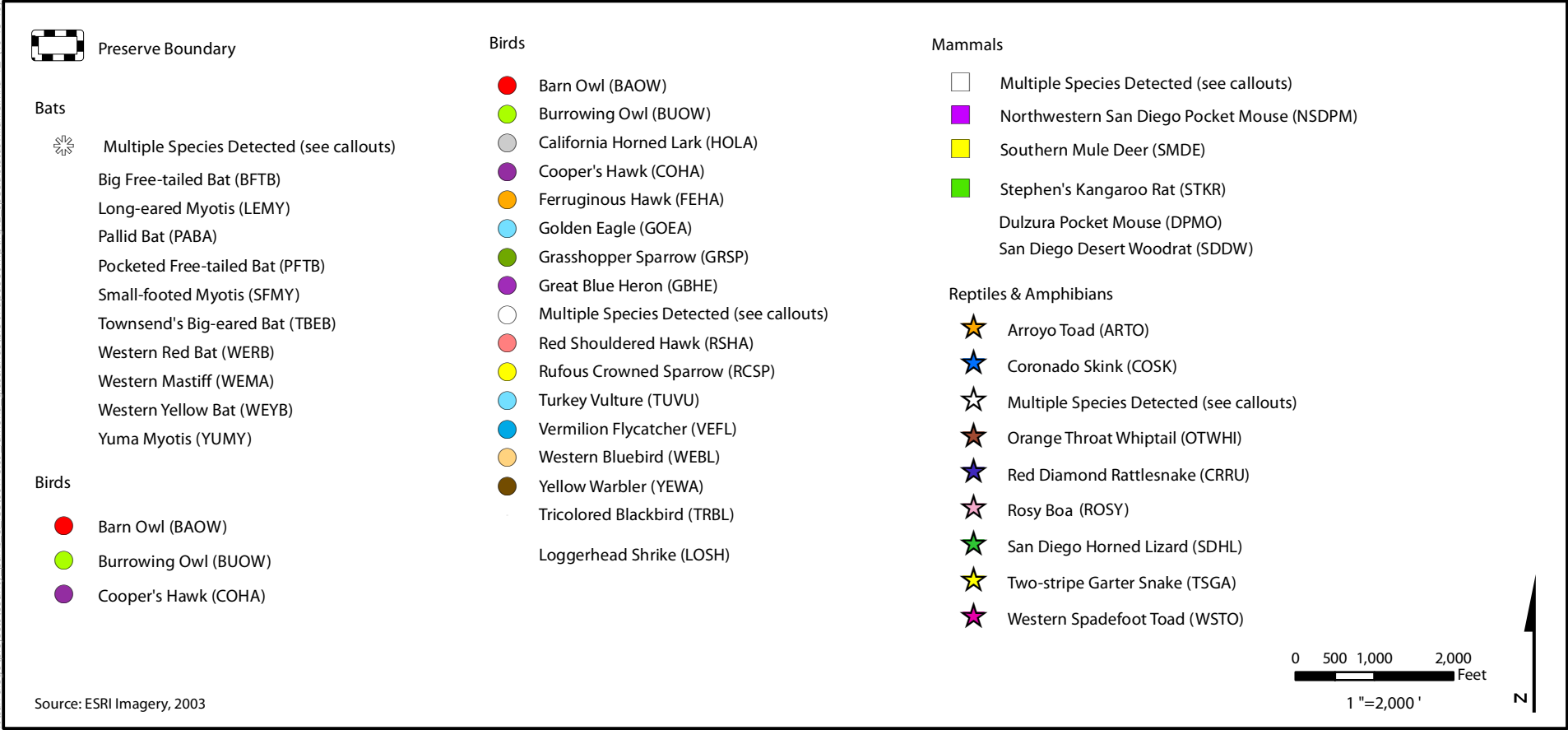
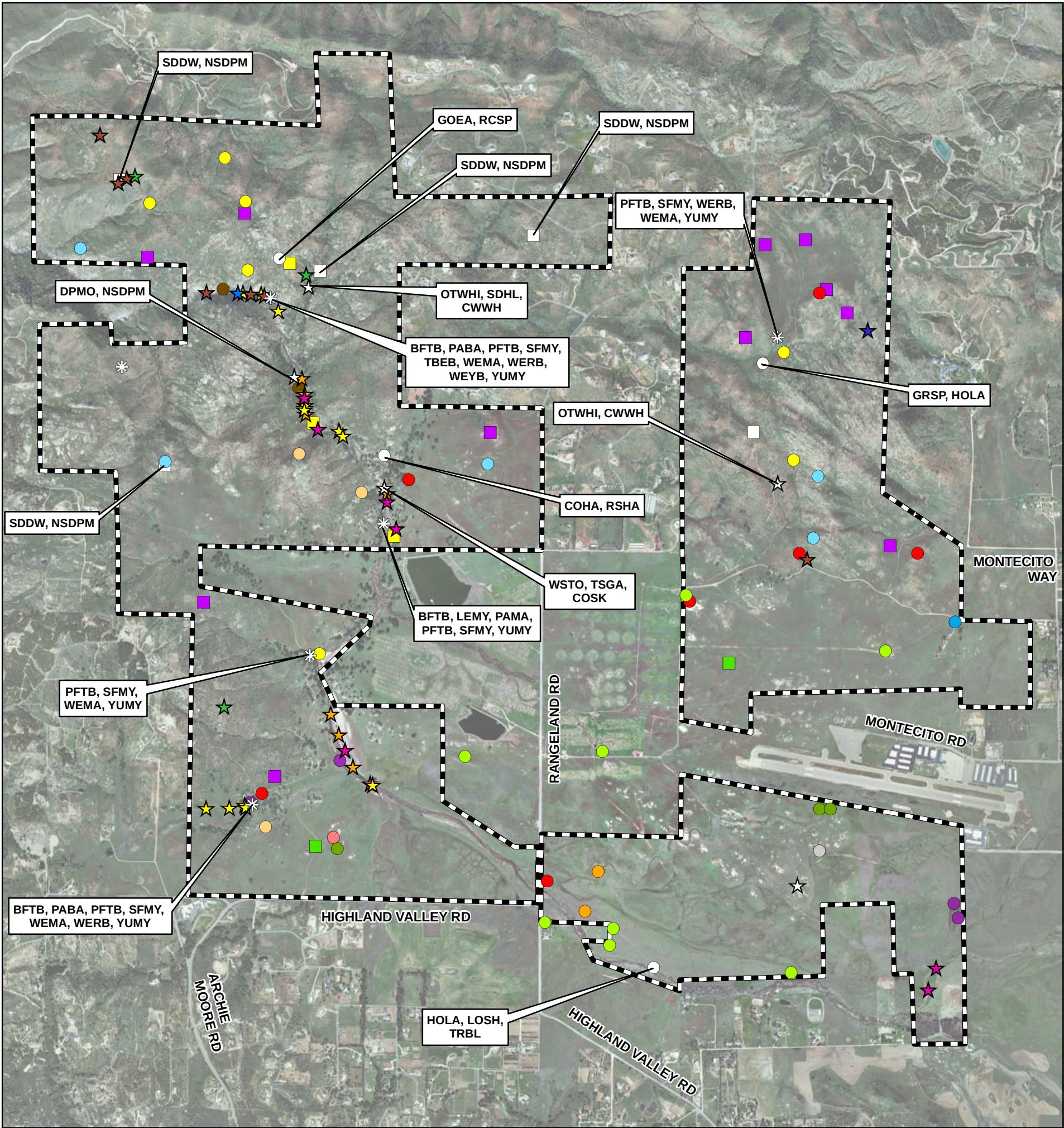


Figure 12
Sensitive Wildlife Species
Ramona Grasslands

Designated critical habitat for the San Diego fairy shrimp exists in the southeast area of the SW portion and almost the entire SE portion of the Preserve, primarily in the vernal pool habitat. San Diego fairy shrimp is well distributed in the vernal pools and swales in the Preserve (FAA 2003, RECON 2005 in CBI 2007), and has also been detected in portions of Santa Maria Creek (EDAW 2003). No other fairy shrimp species were detected in the Preserve. The distribution of fairy shrimp among vernal pools may be related to vernal pool hydrology, and some vernal pools apparently do not hold water long enough for fairy shrimp to reach maturity in some years (EDAW 2002, 2003; Ecological Ventures California 2003). Due to the presence of available data on San Diego fairy shrimp within the Preserve, focused surveys were not conducted in 2009. However, fairy shrimp surveys were conducted in 2010 in association with the updated surveys for spreading navarretia and little mousetail. The 2010 wet season fairy shrimp surveys confirmed the presence of San Diego fairy shrimp in some of the vernal pools located in the SE portion of the Preserve; however, fairy shrimp were not observed in 2010 in the pools located in the SW portion of the Preserve. Nevertheless, given natural variation in the morphology of vernal pools, variation in habitat suitability of fairy shrimp is to be expected.

Herpetofauna

Arroyo Toad (*Anaxyrus* (formally *Bufo*) *californicus*)

Federally Endangered, San Diego County Group I, North County Plan Covered Species

The arroyo toad is endemic to the coastal plains, mountains, and desert slopes of central and southern California and northwestern Baja California from near sea level to about 2,400 meters (8,000 feet). Within these areas, the arroyo toad is found in both perennial and intermittent rivers and streams with shallow, sandy to gravelly pools adjacent to sand or fine gravel terraces. This species has evolved in a system that is inherently dynamic, with marked seasonal and annual fluctuations in rainfall and flooding. Breeding habitat requirements are highly specialized. Specifically, arroyo toads require shallow slow-moving stream and riparian habitats that are naturally disturbed on a regular basis, primarily by flooding (USFWS 2000b).

The breeding period occurs from late January or February to early July, although it can be extended in some years depending on weather conditions. Breeding in mountainous habitats may commence later (May–June) and last longer (to August) than in the coastal portion of the range. Breeding occurs in quiet, clear backwaters of streams as waters recede from the floods of the wet season. When water temperatures reach 57°F (14°C), adult males advertise with a soft, high-whistled trill. Males call from suitable breeding habitat at night. Receptive females seek out calling males based on the size of the male and the sound of his call. Little is known about movements or other behavior in the non-breeding season (USFWS 2000b). Adult arroyo toads spend most of the year in burrows in upland habitat near washes and streams. Non-breeding habitat includes sage scrub, mixed chaparral, and oak woodland.

Designated critical habitat for arroyo toad exists within the Preserve along Santa Maria Creek within the eastern area of the SW portion continuing into the SE portion. Adult and tadpole arroyo toad were observed within Santa Maria Creek west of Rangeland Road within the western portions. These sections of the creek contain high quality habitat as defined by the habitat assessment protocol detailed in the Marine Corps Base Camp Pendleton Arroyo Toad Monitoring Protocol (Atkinson et al 2002). This model uses three physical characteristics to assess the potential to support breeding arroyo toad: (1) channel substrate type being predominantly composed of sand;

(2) the presence of flat sandy terraces immediately adjacent to channel; and (3) having a watercourse of braided channels.

Western Spadefoot (*Spea [=Scaphiopus] hammondi*)

State Species of Special Concern, San Diego County Group II, North County Plan Covered Species

The western spadefoot range covers the central portion of northern California, the Great Valley, and Coast Ranges from San Francisco to Baja California (Lemm 2006). Although they spend the majority of their life outside water, they require temporary rain pools with water temperatures between 48 and 86°F (9 and 30°C) lasting upwards of 3 weeks. For successful breeding to occur these pools must also lack predators of eggs and tadpoles such as introduced fishes, bullfrogs, and crayfishes (Jennings and Hayes 1994). Vernal pools are sometimes occupied by western spadefoot, but in all cases the species must have access to soils suitable for digging to allow aestivation during the dry season. Tolerance of disturbance is high where conditions are otherwise suitable, and the species is sometimes found in pools, even adjacent to roads, resulting from landscape modification.

An adult of this species was observed in pitfall traps, and several individuals were observed in Santa Maria Creek during focused arroyo toad surveys. In addition, tadpoles of this species were observed in a small pool south of the creek in the southeastern corner of the Preserve. The sandy substrate associated with Santa Maria Creek provides ideal burrowing habitat while the pools in and within proximity to the Creek are appropriate for breeding. Based on the number of individuals observed during arroyo toad surveys, the abundance of appropriate breeding pools, and the presence of foraging habitat along Santa Maria Creek, this species is presumed to be abundant within the Preserve.

San Diego Horned Lizard (*Phrynosoma coronatum blainvillii*)

State Species of Special Concern, San Diego County Group II, North County Plan Covered Species

The San Diego horned lizard is a large lizard that historically was found in Kern, Los Angeles, Santa Barbara, and Ventura Counties southward to Baja California, Mexico. Horned lizards inhabit a variety of vegetation communities including coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest (Stebbins 2003). Loose, fine soils with a high sand content, an abundance of prey, and open areas with limited overstory typify suitable habitat for this species (Jennings and Hayes 1994). The San Diego horned lizard's insectivorous diet consists mostly of native harvester ants (*Pogonymyrmex* sp.), which make up over 90% of its prey; however, it is an opportunistic feeder that will take other insects including termites, beetles, flies, wasps, and grasshoppers (Stebbins 2003, Jennings and Hayes 1994).

This species has disappeared from about 45% of its former range, and a number of factors have led to this decline including habitat fragmentation and degradation, loss of native prey to exotic species, and extensive collection for the curio trade (Jennings and Hayes 1994). The specialized diet of harvester ants has made horned lizards especially vulnerable to extirpation since the introduction of Argentine ants (*Linepithema humile*). The San Diego horned lizard was captured in a pitfall trap located in the NW portion of the Preserve and was observed in the NW and SW portions. This species has potential to occur throughout the scrub and chaparral habitats on the Preserve.

Coronado Skink (*Eumeces skiltonianus interparietalis*)

State Species of Special Concern, San Diego County Group II

The Coronado skink is a medium-sized secretive lizard that is typically found in the moister areas of coastal sage, chaparral, oak woodlands, piñon-juniper, riparian woodlands, and pine forests (Jennings and Hayes 1994). Its prey includes small invertebrates found in leaf litter or dense vegetation at the edges of rocks and logs. The Coronado skink is found along the coastal plain and Peninsular Ranges west of the deserts from approximately San Geronio Pass in Riverside County south to San Quentin, Mexico (Jennings and Hayes 1994). On the Preserve, this species was captured in pitfall traps and observed in the NW and SE portions. Given the variety and abundance of habitats that provide moist areas or are in proximity to moist areas on the Preserve, this species has the potential to occur throughout the Preserve.

Belding's Orange-Throated Whiptail (*Cnemidophorus hyperythrus beldingi*)

State Species of Special Concern, San Diego County Group II, North County Plan Covered Species

The Belding's orange-throated whiptail is a medium-sized lizard that ranges from southern California (specifically Corona del Mar in Orange County and Colton in San Bernardino County) southward to the tip of Baja California, Mexico. Historically, most populations of the orange-throated whiptail were found on floodplains or terraces along streams in brushy areas with loose soil and rocks (McGurty 1980). Habitat types they are known to use include chaparral, nonnative grassland, coastal sage scrub, juniper woodland, and oak woodland. California buckwheat is an important indicator of appropriate habitat for orange-throated whiptails (Dudek 2000). This plant species is a colonizer of disturbed, sandy soils and usually indicates open shrub spacing that is required for whiptail foraging and thermoregulatory behavior. Orange-throated whiptails appear to be dietary specialists with most (> 85%) of their prey being termites (Dudek 2000). The decline of orange-throated whiptails is likely due to loss of habitat to agriculture and urban development. On the Preserve, this species was captured in pitfall traps, and observed during active surveys in the chaparral and scrub habitats. This species is presumed to be abundant within the Preserve.

Coastal Western Whiptail (*Cnemidophorus tigris multiscutatus*)

San Diego County Group II

Coastal western whiptail is a medium-sized slender lizard that is found in arid and semiarid desert to open woodlands where the vegetation is sparse so running is easy (Stebbins 2003). Its range includes coastal southern California and western Baja California. The decline of coastal western whiptails is likely due to loss of habitat to agriculture and urban development. On the Preserve, this species was captured in pitfall traps, and observed during active surveys in the chaparral and scrub habitats. This species is presumed to be abundant within the Preserve.

Coastal Rosy Boa (*Charina trivirgata roseofusca*)

San Diego County Group II

Coastal rosy boas are heavy-bodied snakes that inhabit arid scrublands, semi-arid and rocky shrublands, rocky deserts, canyons, and other rocky areas (Stebbins 2003). This species eats rodents, small birds, lizards, small snakes, and amphibians and kills its prey by constriction. Coastal

rosy boas occur in southwestern California from the coastal slopes of the San Gabriel and San Bernardino Mountains, and across the peninsular ranges into the desert in San Diego County (Stebbins 2003). Threats to this species include habitat degradation and fragmentation from urban development. On the Preserve, this species was observed in a rocky area on the NW portion, south of Santa Maria Creek.

Two-Striped Garter Snake (*Thamnophis hammondi hammondi*)

State Species of Special Concern, San Diego County Group I, North County Plan Covered Species

Two-striped garter snake occurs west of the deserts and Central Valley from Salinas, Monterey County, south into Baja California, and at elevations from sea level up to about 2,438 meters (8,000 feet) in the San Jacinto Mountains (Jennings and Hayes 1994). It is often in water and rarely found far from it, though it is also known to inhabit intermittent streams having rocky beds bordered by willow thickets or other dense vegetation (Jennings and Hayes 1994). Two-striped garter snake will also inhabit large riverbeds such as those of the Santa Ana and Santa Clara Rivers if riparian vegetation is available, and even will occur in artificial impoundments if both aquatic vegetation and suitable prey items (small amphibians and fish) are present (Jennings and Hayes 1994). Declines are attributable directly to loss of riparian habitats. On the Preserve, this species was captured in pitfall traps and observed on several occasions during active surveys in Santa Maria Creek and near the pond in the southwestern corner of the SW portion. This species is presumed to be abundant near perennial water within the Preserve.

Red Diamond Rattlesnake (*Crotalus ruber ruber*)

State Species of Special Concern, San Diego County Group II, North County Plan Covered Species

The red diamond rattlesnake is a large, heavy-bodied rattlesnake that has a wide tolerance for varying environments and can be found in a variety of vegetation types, but it is most commonly seen in areas with heavy brush and cacti, rocks, or boulders (Stebbins 2003). The known range extends from San Bernardino County along the coastal and desert slopes southward to Baja California. Adult red diamond rattlesnakes eat mostly squirrels and rabbits, but lizards, specifically the western whiptail, are a significant food source for juveniles (Jennings and Hayes 1994). Urban development and the trend towards planting orchards on steeper rocky hillsides have significantly decreased the amount of appropriate habitat for this species (Jennings and Hayes 1994). This species was observed in the rocky coastal sage chaparral scrub in the NE portion. This species has potential to occur throughout the oak, scrub, and chaparral habitats on the Preserve.

Birds

Great Blue Heron (*Ardea Herodias*)

San Diego County Group II

The great blue heron is a large water bird that can be found in any type of wetland and is typically a colonial breeder that nests in trees near water (Unitt 2004); however, breeding has been documented by isolated pairs and in the absence of trees. Great blue herons will nest in bushes, on the ground, or in artificial structures (Butler 1992, Unitt 2004). This species is non-migratory in southern California but is migratory in other parts of its range (Unitt 2004). Great blue herons forage diurnally in estuaries

and beaches but are also commonly seen on dry land (Unitt 2004, K. Fischer pers. obs.). The observation in 2009 was of a lone individual in March moving through the Preserve. A breeding colony does occur at the San Diego Zoo Safari Park in San Pasqual Valley, and this bird may have been using the Preserve for foraging. This species is common within the County.

Turkey Vulture (*Cathartes aura*)

San Diego County Group I

Turkey vultures are often seen foraging over woodlands and nearby open country (Unitt 2004). They prefer dry, open country and ranch lands and often occur along roadsides where carrion is common. They nest in crevices among granite boulders (Unitt 2004). The turkey vultures' range has been retracting from the coast due to human disturbance, loss of foraging habitat, and pesticide contamination (Unitt 2004). Turkey vultures were observed foraging over the Preserve. There is suitable breeding habitat for this species on the Preserve; however, no nests were observed in 2009. This species is common in the undeveloped areas of east San Diego County.

Cooper's Hawk (*Accipiter cooperii*)

San Diego County Group I, South County Plan Covered Species

The Cooper's hawk is a resident of riparian deciduous habitats and oak woodlands but in recent times has become adapted to urban park environments (Unitt 2004). They hunt their primary source of food, passerines, in broken woodlands and forest margins, and they are also known to take fish and mammals. The Cooper's hawk population declined due to hunting and loss of habitat; however, this species is making a comeback through its adaptation to the urban environment (Unitt 2004). Cooper's hawk was detected during point counts in 2009. One nest was detected within the eucalyptus trees at the eastern edge of the SE portion (Figure 12). Breeding can be assumed in the oak woodlands adjacent to Santa Maria Creek and its tributaries. This species is widespread throughout the County.

Red-shouldered Hawk (*Buteo lineatus*)

San Diego County Group I

The red-shouldered hawk was once an uncommon breeder of lowland riparian woodlands but has been thriving in urban environments with large trees such as eucalyptus (Unitt 2004). On the west coast, this species is found in California and northern Baja California and is common throughout San Diego County. Red-shouldered hawks were regularly detected during point counts in 2009. This species is widespread throughout the County.

Ferruginous Hawk (*Buteo regalis*)

San Diego County Group I, South County Plan Covered Species

The ferruginous hawk is an uncommon winter visitor to San Diego County that is mostly found foraging in open grasslands (Unitt 2004). Development of the grasslands they forage over caused the decline in this species (WRI 2007). The Preserve is a prime wintering location for ferruginous hawks (WRI 2007). Four were detected on February 25, 2009, on the SE portion, and other individuals were sporadically recorded during other surveys in February.

Golden Eagle (*Aquila chrysaetos*)

State Fully Protected Species, San Diego County Group I, North and South County Plan Covered Species

Golden eagles nest on cliff ledges or trees on steep slopes and forage in grasslands, sage scrub, or broken chaparral (Unitt 2004). Development of the grasslands they forage over has taken a toll on the numbers of this species present in San Diego County. A territory averages 36 square miles so removal of foraging habitat will have significant impacts on this species (Unitt 2004). Historically, a golden eagle pair breeds and forages at the Preserve (WRI 2007). During the 2009 surveys, the pair was observed on numerous occasions throughout the season. No active nests were confirmed but there is suitable habitat for breeding on the NW portion of the Preserve.

Barn Owl (*Tyto alba*)

San Diego County Group II

The barn owl is the owl species that is most tolerant to urban development (Unitt 2004). It will nest in buildings, nest boxes, at the base of the leaves in palm trees, and in cavities in native trees (Unitt 2004). Even though this species is tolerant of human development, dense housing communities do not provide suitable nesting habitat, and increased traffic has had a negative effect on the species (Unitt 2004). Barn owls were detected all over the Preserve and were the most widespread owl species detected during nocturnal surveys. One family group was detected near the southwestern edge of the SE portion of the Preserve but most likely breeds throughout the Preserve. This species is widespread throughout the County.

Burrowing Owl (*Athene cunicularia*)

State Species of Special Concern, San Diego County Group I, North and South County Plan Covered Species, Narrow Endemic

Burrowing owls are found in prairies, grasslands, lowland scrub, agricultural lands, coastal dunes, desert floors, and some artificial open areas (Unitt 2004). This species requires large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. The barn owl uses rodent or other burrows for roosting and nesting cover and also is known to use pipes, culverts, and nest boxes where burrows are scarce. As with other grassland species, the burrowing owl population in San Diego County is on the decline due to loss of habitat to development and habitat fragmentation (Unitt 2004). Burrowing owls naturally and artificially occur at the Preserve (WRI 2007). In 2005, relocated owls were introduced to enhanced habitat south of the SE portion on Wildlife Research Institute (WRI) property. These owls did successfully breed in low numbers. In 2009, burrowing owls were detected diurnally near the southern edge of the Preserve where WRI installed artificial burrows. Breeding is likely occurring in some of these burrows. No protocol surveys were conducted for the species, but general surveys through suitable habitat did not reveal any new occupied burrows within the Preserve's boundary. During nocturnal surveys, burrowing owls were detected foraging on the southern and NE portions of the Preserve. This species is limited to three other breeding populations on the coastal side of the local mountains (Unitt 2004).

Vermillion Flycatcher (*Pyrocephalus rubinus*)

State Species of Special Concern, San Diego County Group I

The vermillion flycatcher is a rare species to San Diego County that has only been documented breeding in one location on the coastal side of the local mountains (Unitt 2004). This species is typically associated with the desert riparian plant community, and San Diego County represents the southwestern edge of its breeding range (Unitt 2004, Shuford and Gardali 2008). In February 2009, one individual was observed on a barbed-wired fence on the NE portion of the Preserve. This bird was transitory and was not observed again.

Loggerhead Shrike (*Lanius ludovicianus*)

State Species of Special Concern, San Diego County Group I

Loggerhead shrikes are found near grassland, open sage scrub and chaparral, and desert scrub (Unitt 2004). They nest in dense vegetation adjacent to open foraging habitats. Shrikes prefer to sit on an exposed tree limb or utility line looking for prey. They attack their prey from either a hovering flight above or from their perch. The loggerhead shrike population in San Diego County is on the decline due to loss of habitat to development and habitat fragmentation (Unitt 2004). The species is still found throughout the County on the coastal plain and into the desert. One loggerhead shrike was observed in August 2009 foraging at the SW portion of the Preserve during a point count. This species is widespread throughout the County.

California Horned Lark (*Eremophila alpestris actia*)

San Diego County Group II

The California horned lark is a resident of a variety of open habitats, usually where trees and large shrubs are absent (Zeiner et al. 1990). This species primarily breeds in open fields and grasslands and is found along the coastal slope of San Diego County east to Jacumba (Unitt 2004). Continuing threats to this species include habitat destruction and fragmentation. California horned larks were observed during point counts in the NE and SE portions of the Preserve. This species is widespread throughout the County.

Western Bluebird (*Sialia mexicana*)

San Diego County Group II, South County Plan Covered Species

The western bluebird is a stocky blue bird with a chestnut chest and is considered common in the foothills and mountains of San Diego County. This species can usually be found in montane coniferous and oak woodlands (Unitt 2004). It can also occur in areas with scattered trees, open forests, and scrubs, and during the winter it can be found in the desert. Western bluebirds breed in western North America from southern British Columbia south to central Mexico, east to western Montana, and west to Texas, but are absent from the Great Basin (Guinan et al. 2000). They can also winter outside their breeding range in central California and along the lower Colorado River (Guinan et al. 2000). Western bluebird numbers are declining due to loss of nesting cavities to logging, fire suppression, and competition with nonnative species such as European starling and house sparrow (*Passer domesticus*) (Unitt 2004).

Western bluebirds were observed on the Preserve in February, March, April, and August 2009. A pair was observed building a nest near the pond in the southwest corner of the Preserve. Individuals were also detected in the oak woodland on the NW portion (Figure 12). This species is still fairly common in San Diego County (Unitt 2004).

Yellow Warbler (*Dendroica petechia*)

State Species of Special Concern, San Diego County Group II

The yellow warbler is a small insectivorous migratory passerine that inhabits lowland and foothill mature riparian woodlands (Unitt 2004, Dudek 2000). Preferred plant species include cottonwoods (*Populus* spp.), willows (*Salix* spp.), and other small trees and shrubs typically found in open-canopy riparian woodlands. Yellow warblers are usually on their breeding grounds from late March to mid-October. Destruction and degradation of riparian habitat and brood parasitism by the brown-headed cowbird led to the decline of this species (Unitt 2004). Cowbird trapping has caused an increase in the San Diego County population of yellow warblers (Unitt 2004). At least one singing yellow warbler was detected in the oak woodland on the NW portion in April 2009 (Figure 12). This species is currently considered fairly common in San Diego County (Unitt 2004).

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

San Diego County Group I, North and South County Plan Covered Species

The southern California rufous-crowned sparrow is a resident species that is closely associated with coastal sage scrub, steep rocky hillsides, burned chaparral, and openings in mature chaparral (Unitt 2004). Preferring open habitat with approximately 50% shrub cover, this species seeks cover in shrubs, rocks, grass, and forb patches (Dudek 2000, Unitt 2004). The southern California subspecies is restricted to semiarid coastal sage scrub and sparse chaparral from Santa Barbara south to the northwestern corner of Baja California (Dudek 2000). Southern California rufous-crowned sparrows are declining due to loss of appropriate habitat and their sensitivity to habitat fragmentation (Unitt 2004). Southern California rufous-crowned sparrows were incidentally detected during other surveys or while surveyors were traveling to the point count stations and were recorded during point counts in March through August 2009 (Figure 12). This species is still found throughout San Diego County in large numbers (Unitt 2004).

Grasshopper Sparrow (*Ammodramus savannarum*)

State Species of Concern, San Diego County Group I, North County Plan Covered Species

The grasshopper sparrow is endemic to native grasslands and only the subspecies *Ammodramus savannarum perpallidus* has been collected in California (Unitt 2004). Native grasslands are a quickly diminishing resource in San Diego County, and a low number of individuals will continue to persist in areas with nonnative grass species (Unitt 2004). Urban development is the leading threat to this species. Grasshopper sparrows were documented in the vicinity prior to the Cedar Fire (Unitt 2004). Three singing grasshopper sparrows were detected in April and June 2009: one on the SW portion and two on the SE portion of the Preserve (Figure 12). This species is known to occur in Ramona.

Tricolored Blackbird (*Agelaius tricolor*)

State Species of Concern, San Diego County Group I, North and South County Plan Covered Species, Narrow Endemic

Tricolored blackbirds are the most intensively gregarious bird species in California, with males and females normally remaining in large flocks together year round (Unitt 2004). The species is nearly restricted to California, and apparently makes only relatively short-distance seasonal movements. They nest in dense colonies in marshes and occasionally in moist thickets, agricultural fields, or sewage treatment plants (Unitt 2004). They will readily use restored or created wetlands; they may use a site for many years, or just one season, with productivity of young varying greatly from year to year. They often commute in flocks for some distance between nesting and feeding areas, and the latter can be in varied wetlands, including sewage treatment plants, or in open areas such as agricultural fields and even stock yards or short grasslands. A nesting colony is known to occur at the Ramona Water District Ponds (Unitt 2004). In 2009, a large flock (approximately 46 birds) was observed foraging on the SE portion. There are only 20 to 30 known breeding colonies remaining in San Diego County (Unitt 2004).

Mammals

Small-footed Myotis (*Myotis ciliolabrum*)

San Diego County Group II

The small-footed myotis is found throughout most of western North America, from southwestern Canada south into Mexico (BCI 2008). There is not much information on the habitat requirements of this species, but it has been documented under rock slabs and in crevices, mine tunnels, under loose tree bark, and in buildings (BCI 2008). This species hibernates in caves, typically in small groups. Reasons for decline are poorly understood as there has been little research conducted on this species. Both suitable roosting and foraging habitat for the small-footed myotis occur on site, and the species was detected at all six sampling locations indicating widespread use of the Preserve by this species. There were 222 detections of this species during all three sampling seasons. The Preserve most likely supports a breeding population of this species.

Long-eared Myotis (*Myotis evotis*)

San Diego County Group II

Long-eared myotis is found in western North America from British Columbia south through California to Baja Mexico (BCI 2008). This species prefers coniferous forests in higher altitudes and will roost in caves, rock crevices, under tree bark, or in buildings (BCI 2008). This species' use of the Preserve was limited to near the cave and the upper Santa Maria Creek in the NW portion of the Preserve. There were only seven detections in summer and fall. The Preserve has some value to this species but does not appear to be a core use or breeding area for the species.

Yuma Myotis (*Myotis yumanensis*)

San Diego County Group II

The Yuma myotis is found throughout much of the western U.S. and into Canada (BCI 2008). The species is always found near lakes, creeks, or ponds where the species forages over the water. Typically, individuals skim low over the water and snatch up flying insects, but they can forage in other mesic areas. The species roosts by day usually in buildings or bridges but has been documented using mines or caves (BCI 2008). Yuma myotis are threatened by loss of riparian habitat and the decline in permanent water sources in the southwest. Yuma myotis was detected at all six sampling locations throughout the Preserve, during all three sampling seasons, and in very high number (4,346 total observations). The Preserve most likely supports a breeding population of this species.

Western Red Bat (*Lasiurus blossevillii*)

State Species of Special Concern, San Diego County Group II

Western red bats are found from southern Canada, throughout the U.S., all the way down to South America (BCI 2008). Several species in the genus *Lasiurus* are commonly referred to as "tree bats" because they roost only in tree foliage. The western red bat is a typical tree bat, with a close association with cottonwoods (*Populus* spp.) and riparian areas (BCI 2008). Like all tree bats, this species is solitary, coming together only to mate and to migrate. Western red bats typically forage along forest edges, in small clearings, or around street lights where they prefer moths (BCI 2008). Although largely undocumented, this species' decline appears to be in part due to the loss of lowland riparian forests in the southwest. Both the roosting and foraging needs of the western red bat could be supported by the Preserve. The species was detected at three of the sampling locations: two near Santa Maria Creek in the north and SW portions, and one near the pond in the southwest corner of the Preserve. The species was detected in low numbers (22 total observations) during all three sampling seasons.

Western Yellow Bat (*Lasiurus xanthinus*)

State Species of Special Concern

The western yellow bat is an uncommon species that in California is only known from Los Angeles and San Bernardino Counties south to the Mexican border (CDFG 2005). This species roosts in trees, especially palm trees in desert environments, and forages over water and among trees in riparian areas (CDFG 2005). Their flight pattern appears to be slow and steady but they can be fast and maneuverable if needed (CDFG 2005). One individual was detected in the fall of 2009 at Santa Maria Creek in the NW portion of the Preserve.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

State Species of Special Concern, San Diego County Group II, North County Plan Covered Species

Townsend's big-eared bat occurs throughout the drier portions of California (Zeiner et al. 1990). It is non-migratory and hibernates from approximately October through April. A wide variety of natural communities are occupied but mesic sites are preferred. The bats capture a variety of prey while in flight, which is slow and maneuverable, and they are capable of hovering (Zeiner et al. 1990). The

species is known to roost predominantly in caves but will use lava tubes, mines, tunnels, buildings, and other human-made structures (BCI 2008). They are extremely sensitive to disturbance at their roosting sites and have suffered severe population declines throughout much of the U.S. (BCI 2008). Two individuals were detected in the fall of 2009 along Santa Maria Creek in the NW portion of the Preserve.

Pallid Bat (*Antrozous pallidus*)

State Species of Special Concern, San Diego County Group II, North County Plan Covered Species

Pallid bats are widely distributed in the southwestern U.S. and northern Mexico (BCI 2008). They are locally common across most of California except in the far northwest and in higher portions of the Sierra Nevada. Habitats utilized include a wide variety of grasslands, shrublands, woodlands, and forests, including mixed conifer forest (Zeiner et al. 1990). They appear to be most common in open, dry, rocky lowlands, and they roost in caves, mines, crevices in rocks, buildings, and trees.

This is a colonial species that forages low over open ground, often picking up beetles and other species of prey off the ground (Zeiner et al. 1990). Flight is slow and maneuverable, and they are able to take a wide variety of prey, including large, hard-shelled insects (Zeiner et al. 1990). They have separate night and day roosts, hibernate in winter, and the sexes segregate in summer. The species was detected at three of the sampling locations: two near Santa Maria Creek in the north and SW portions of the Preserve, and one near the pond in the SW portion. There were a total of six detections in spring and summer.

Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)

State Species of Special Concern, San Diego County Group II

Pocketed free-tailed bats are rarely found in southwestern California. These bats live in arid desert areas and roost in crevices high on cliff faces in rugged canyons (BCI 2008). Nursery colonies are relatively small and usually include fewer than 100 individuals. This species primarily forages on large moths, especially over water. The regional status and species trends are unclear, but it is likely vulnerable to disturbance, especially at roosts, and perhaps also to threats to food supply from human-made toxins. The data indicate widespread use of the Preserve by pocketed free-tailed bats, and this species was detected at all six sampling locations during all three sampling seasons. A total of 334 detections were recorded.

Big Free-tailed Bat (*Nyctinomops macrotis*)

State Species of Special Concern, San Diego County Group II

Big free-tailed bats are typically found in desert and arid grasslands with rocky outcrops, canyons, or cliffs (BCI 2008). This species roosts on cliffs and occasionally in buildings. Isolated populations can be found throughout the southwestern U.S. into Mexico. The regional status and species trends are unclear, but it is likely vulnerable to disturbance, especially at roosts, and perhaps also to threats to food supply from man-made toxins. The big free-tailed bat was detected in low numbers (five total detections) at three of the sampling locations: two near Santa Maria Creek in the north and SW portions, and one near the pond in the SW portion of the Preserve. The species was detected only in summer and fall 2009.

Western Mastiff Bat (*Eumops perotis*)

State Species of Special Concern, San Diego County Group II

Western mastiff bats are the largest native bats in the United States. This subspecies occurs from the western foothills of the Sierra Nevada and the coastal ranges (south of San Francisco Bay) southward into Mexico (BCI 2008). In southern California, they are found throughout the coastal lowlands up to drier mid-elevation mountains, but avoid the Mohave and Colorado deserts (Zeiner et al. 1990). Habitats include dry woodlands, shrublands, grasslands, and occasionally even developed areas. This big bat forages in flight, and most prey species are relatively small, low to the ground, and weak-flying. For roosting, western mastiff bats appear to favor rocky, rugged areas in lowlands where abundant suitable crevices are available for day roosts (BCI 2008). Roost sites may be in natural rock or in tall buildings, large trees, or elsewhere. The reasons for this species' decline are poorly understood but probably are related to disturbance, habitat loss, and perhaps widespread use of pesticides. The western mastiff bat was detected at five of the six sampling locations in low numbers (26 total observations) during all three sampling seasons.

Dulzura Pocket Mouse (*Chaetodipus californicus femoralis*)

State Species of Special Concern, San Diego County Group II

Dulzura pocket mouse is mainly active on the ground, but also climbs shrubs and small trees when feeding (CDFG 2005). This species can become torpid by day at any time of the year, and is inactive in cold wet weather. It breeds in spring to early summer and occurs from sea level to approximately 2,408 meters (7,900 feet) AMSL (CDFG 2005). This species prefers dense chaparral and is less common in dry grassland and desert scrub. During the 2009 trapping program on the Preserve, 9 of the 1,067 animals captured were Dulzura pocket mice. All of the captures were located near Santa Maria Creek in the NW portion of the Preserve. An additional live trapping for Stephens' kangaroo rat was conducted in the SW portion of the Preserve in 2010, which resulted in captures of Dulzura pocket mice along the Oak Country II trail (ICF 2010).

Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)

State Species of Special Concern, San Diego County Group II

The northwestern San Diego pocket mouse is typically found in coastal sage scrub, sage scrub/grassland ecotones, and chaparral (Dudek 2000). It inhabits open, sandy areas of both the Upper and Lower Sonoran areas of southwestern California and northern Baja California (Dudek 2000). This species is sensitive to habitat fragmentation and degradation, which has led to its decline. During the 2009 trapping program on the Preserve, 337 of the 1,067 animals captured were northwestern San Diego pocket mice. Northwestern San Diego pocket mice were detected at 17 separate sampling locations scattered throughout the Preserve.

Stephens' Kangaroo Rat (*Dipodomys stephensi*)

Federal Endangered, State Threatened, San Diego County Group I, North County Plan Covered Species, Narrow Endemic

The Stephens' kangaroo rat is found almost exclusively in open grasslands or sparse shrublands with cover of less than 50% during the summer. The species typically avoids dense grasses (for example,

nonnative bromes [*Bromus* spp.]) and is more likely to inhabit areas where the annual forbs disarticulate in the summer and leave more open areas. Soil type also is an important habitat factor. As a fossorial (burrowing) animal, the species typically is found in sandy and sandy loam soils with a low clay to gravel content, although there are exceptions where they can utilize the burrows of Botta's pocket gopher and California ground squirrel. This species tends to avoid rocky soils. Slope is a factor in occupation; the species tends to use flatter slopes (i.e., < 30%), but may be found on steeper slopes in trace densities (i.e., < one individual per hectare). Furthermore, the species may use steeper slopes for foraging, but not for burrows. In general, the highest abundances of species occur on gentle slopes less than 15%. During the 2009 trapping program on the Preserve, only 3 of the 1,067 animals captured were Stephens' kangaroo rats. Positive sample locations included the grasslands north of the Ramona airport and south of Santa Maria Creek in the SW portion of the Preserve. These animals were processed by a biologist permitted to handle Stephens' kangaroo rat.

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

State Species of Special Concern, San Diego County Group II

San Diego desert woodrat requires large amounts of water, which it obtains from fleshy plants such as yucca species and prickly pear cactus (*Opuntia* sp.). It usually makes a stick house under one of these food plants, or may den among rocks (CDFG 2005). House materials include cacti, sticks, bones, and a variety of debris. Houses provide insulation against excessive heat as well as protection from predators. This species breeds in late winter or spring, occurs from sea level to approximately 2,591 meters (8,500 feet) AMSL in deserts and coastal sage scrub, and prefers areas with rocky outcrops and plentiful succulents (CDFG 2005). During the 2009 trapping program on the Preserve, 32 of the 1,067 animals captured were San Diego desert woodrats. Positive sample locations were limited to the NW and NE portions of the Preserve.

Southern Mule Deer (*Odocoileus hemionus fuliginata*)

San Diego County Group II, South County Plan Covered Species

Southern mule deer are common across the western U.S. in a variety of habitats from forest edges to mountains and foothills (Whitaker 1996). Southern mule deer prefer edge habitats, rarely travel or forage far from water, and are most active around dawn and dusk. Some sign of southern mule deer was seen at the Preserve, and a few deer were photographed during camera sampling. Southern mule deer was recorded at two camera stations in the NW portion of the Preserve. There was not as much deer activity as would be expected in a preserve this size.

3.3.3 Rare, Threatened, or Endangered Wildlife Species not Observed but with High Potential to Occur

Additional information on the species listed below can be found in the Baseline Biological Resources Evaluation (Appendix A).

Herpetofauna

California Legless Lizard (*Anniella pulchra pulchra*)

State Species of Special Concern, San Diego County Group II

Although this species was not observed during the 2009 surveys, it has high potential to occur in the oak, scrub, and chaparral habitats occurring on the Preserve.

San Diego Ringneck Snake (*Diadophis punctatus similis*)

San Diego County Group II

Although this species was not observed during the 2009 surveys, it has high potential to occur in all the natural habitats occurring on the Preserve.

Coast Patch-Nosed Snake (*Salvadora hexalepis virgutea*)

State Species of Special Concern, San Diego County Group II

Although this species was not observed during the 2009 surveys, it has high potential to occur in all the natural habitats occurring on the Preserve.

Birds

White-Tailed Kite (*Elanus caeruleus*)

State Fully Protected Species (nesting), San Diego County Group I

Like most raptor species, white-tailed kites forage in open grassland areas with abundant small mammal prey and nest in dense woodland areas. Within the Preserve, this species has the potential to use the open grassland areas for foraging and the eucalyptus and oak woodlands for nesting.

Bald Eagle (*Haliaeetus leucocephalus*)

State Endangered, State Fully Protected Species, San Diego County Group I

The bald eagle has occasionally been seen wintering at the Preserve (2004, 2005 and 2006) (WRI 2007). The potential presence of carrion throughout the Preserve provides suitable foraging habitat for this species; the ponds within and adjacent to the Preserve do not provide a significant source of fish for foraging eagles. The bald eagle has been previously observed in the SE portion of the Preserve.

Northern Harrier (*Circus cyaneus*)

State Species of Special Concern, San Diego County Group I, North County Plan Covered Species

Northern harriers are not known to breed at the Preserve; however, they are known to occasionally forage and winter there (2004, 2005 and 2006) (WRI 2007). This species has the potential to forage throughout the Preserve.

Sharp-shinned Hawk (*Accipiter striatus*)**San Diego County Group II**

This species has high potential to occur as a migrant within the Preserve as it has been documented during surveys in 2004 moving through the Preserve (WRI 2007). This species has the potential to forage throughout the Preserve.

Northern Goshawk (*Accipiter gentilis*)**State Species of Special Concern**

This species is a rare winter vagrant and a very rare visitor to the grasslands found on the Preserve (WRI 2007). The grasslands within the Preserve provide winter foraging habitat for migrating goshawks.

Peregrine Falcon (*Falco peregrinus*)**State Endangered, State Fully Protected Species, San Diego County Group I**

The peregrine falcon has been recorded at the Preserve during migration in 2004 and 2006 (WRI 2007). Because the Preserve does not provide suitable nesting habitat, observations would be transitory in nature.

Prairie Falcon (*Falco mexicanus*)**State Species of Special Concern, San Diego County Group I**

This species has high potential to occur within the Preserve during migration and has been documented during historical surveys in 2003 through 2006 (WRI 2007). This species has the potential to forage primarily within the grasslands in the Preserve.

Merlin (*Falco columbarius*)**San Diego County Group II**

This species has high potential to occur as a migrant within the Preserve because it has been detected at the Preserve in previous winters (2004 and 2006) (WRI 2007). This species has the potential to forage throughout the Preserve,

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)**Federally Endangered, State Endangered, San Diego County Group I, North County Plan Covered Species**

A migrant willow flycatcher was detected moving through the Preserve in June 2005 (Lovio 2007); the drainage channels within the Preserve provide suitable habitat for migrating willow flycatchers. Breeding habitat does not occur within the Preserve.

Least Bell's Vireo (*Vireo belli pusillus*)

Federally Endangered, State Endangered, San Diego County Group I, North County Plan Covered Species

Least Bell's vireo has moderate to low potential to occur on the Preserve in its current state. There is not much suitable breeding habitat on the Preserve to support the species. If the riparian scrubs within Santa Maria Creek develop a dense understory and a more developed overstory, this species may one day inhabit the Preserve. A historically large population persisted in San Pasqual Valley, northeast of the Preserve (K. Fischer pers. obs.); however, the Witch Fire of 2007 destroyed many acres of this species' preferred habitat.

Coastal California Gnatcatcher (*Poliophtila californica californica*)

Federally Threatened, State Species of Special Concern, San Diego County Group I, North County Plan Covered Species

Coastal California gnatcatchers have historically been detected at the Preserve (1999) and adjacent to the Preserve (1998, 2001, 2002) (BIOS 2009). The northern area of the NE portion and southeastern area of the NW portion includes designated critical habitat for coastal California gnatcatcher. Currently, most of the coastal sage scrub within the Preserve is not appropriate for this species, and, if it is appropriate, it is isolated from other patches. This species has potential to occur in the future because it previously inhabited the area, but current conditions do not support suitable habitat for the species. As the coastal sage scrub recovers and California gnatcatchers inhabit the nearby coastal sage scrub, this species will have high potential to occur at the Preserve.

Bell's Sage Sparrow (*Amphispiza belli belli*)

San Diego County Group I, North County Plan Covered Species

Bell's sage sparrows were not observed during the 2009 surveys, but there is high potential for the species to occur because it has been recorded in the immediate vicinity (Unitt 2004). This species has the potential to occur within the open coastal sage scrub, coastal sage-chaparral scrub, and chaparral vegetation communities within the Preserve.

Mammals

Mountain Lion (*Puma concolor*)

San Diego County Group II, North County Plan Covered Species

The Preserve and the surrounding open space provide habitat for mountain lion to use for foraging and cover, and the species has been documented on the Preserve during previous surveys (CBI 2007).

3.3.4 Nonnative and/or Invasive Wildlife Species

Native species are often at a disadvantage after exotic species or nonnative predators are introduced. Nonnative animal species have few natural predators or other ecological controls on their population sizes, and they thrive under conditions created by humans. These species may

aggressively outcompete native species or otherwise harm sensitive species. When top predators are absent, intermediate predators multiply and increase predation on native bird species and their nests. Feral and domestic animals, particularly cats, can prey on small native wildlife species. Feral animals are not a current problem at the Preserve. With the increased use of the Preserve by hikers and their dogs and horseback riders, increased interactions between domestic animals and native animals are expected. There were 12 nonnative animal species documented during the current survey effort: red swamp crayfish (*Procambarus clarkia*), common pillbug (*Armadillidium vulgare*), honey bee (*Apis mellifera*), bullfrog, wild turkey, rock pigeon, European starling, brown-headed cowbird, Virginia opossum, domestic dog, domestic horse, and domestic cattle. Domestic cattle is a nonnative species that occurs on the Preserve; however, for the purpose of this Preserve, this species is not considered invasive as there are leases with cattle ranchers that allow these cattle to graze on the Preserve, and cattle grazing is also used as an adaptive management tool to conserve sensitive biological resources on site.

Red swamp crayfish were detected in Santa Maria Creek. Adult and juvenile bullfrogs were detected both in Santa Maria Creek west of Rangeland Road and in the pond on the SW portion of the Preserve. Both of these species prey on amphibian larvae and, in the case of bullfrogs, adult amphibians.

Five wild turkeys were detected in August 2009 on the SW portion of the Preserve. Three rock pigeons were detected during the point county surveys. Neither of these bird species poses a threat to the native avian species present on the Preserve.

There were 49 sightings of European starling at six avian point county stations. This species nested in the oak trees adjacent to Station 8 on the NW portion of the Preserve. Given the large expanse of the Preserve, this species does not currently pose a significant threat to the native avian species on the Preserve. The majority of the observations came from individuals passing through the Preserve to other developed areas or were repeated observations of a nesting site.

Brown-headed cowbird, an obligate brood parasite, was present only as a migrant and wanderer on the Preserve. Four sightings of individuals, mainly males, were recorded on or over the Preserve. No juveniles were detected, indicating that this species may not parasitize nests on the Preserve, or, if there is parasitism, it is in low numbers.

3.4 Overall Biological and Conservation Value

The Preserve makes up the majority of the Ramona Grasslands Core and Linkage Area. The core area consists of 7,396 acres including Santa Maria Valley, east of the town of Ramona. This core area is a high priority area of preservation given its high numbers of special-status species habitat including federally listed species; connection to adjacent natural areas in San Pasqual Valley, Barnett Ranch and Iron Mountain; and the presence of sensitive vegetation communities including vernal pools and native grassland.

Native grassland, coast live oak woodland, vernal pools, riparian forest, and riparian scrub within the Preserve is considered MSCP Tier I habitat and supports several special-status species including Engelmann oak, Palmer's sagewort, southwestern spiny rush, San Diego fairy shrimp, arroyo toad, two-striped garter snake, western spadefoot, western bluebird, barn owl, Cooper's hawk, red-shouldered hawk, and yellow warbler. Additionally, several species of special-status small mammals

including bats were observed within these habitats. Coastal sage scrub and coastal sage-chaparral scrub within the Preserve are considered MSCP Tier II habitats and support Ramona spineflower, Belding's orange-throated whiptail, coastal western whiptail, and San Diego coast horned lizard. Nonnative grassland is considered a MSCP Tier III habitat and supports graceful tarplant and Stephens' kangaroo rat, and provides foraging habitat for several special-status raptors including red-shouldered hawk, ferruginous hawk, and golden eagle.

The Preserve provides habitat for four federally listed species: San Diego thornmint, San Diego fairy shrimp, arroyo toad, and Stephens' kangaroo rat. The Habitat Evaluation Model (HEM) for Stephens' kangaroo rat in the North County Plan shows the majority of the grasslands within the Preserve rated as very high habitat value. The HEM for arroyo toad shows the Santa Maria Creek corridor within the Preserve rated as very high habitat value.

3.4.1 Wildlife Linkages and Corridors

Wildlife movement corridors are areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetative cover provide corridors for wildlife movement. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations.

The Preserve is identified within the North County Plan as a core habitat area (Area 13) and a linkage that connects San Pasqual Valley to the north with Barnett Ranch and Iron Mountain preserve areas to the south. The Preserve serves as an important corridor for wildlife movement between these areas. The major wildlife movement feature located within the Preserve is Santa Maria Creek. Santa Maria Creek provides access and concealment to wildlife species of all sizes. Larger mammals such as coyotes regularly move on, off of, and across the Preserve, to and from adjacent open space. There is a wildlife crossing under Rangeland Road that connects the two southern portions of the Preserve. This crossing was identified in the North County Plan as important. In 2009, numerous mammal species were documented utilizing this crossing including striped skunk, coyote, long-tailed weasel, and Virginia opossum.

Along the western portion of the Preserve the Santa Maria Creek traverses off site of the Preserve and then back onto the Preserve. The portion of the creek between the Preserve passes through property owned by the RMWD.

The largest features within the Preserve that have the potential to restrict wildlife movement are roads and fences. Rangeland Road is the largest and only paved road that can be seen as a movement barrier between different portions of the Preserve. The intersection of Rangeland Road and Santa Maria Creek is a pinch point where animal movement from one side of the Preserve to the other is funneled under the existing concrete bridge.

3.4.2 Designated Critical Habitat

The Preserve includes USFWS-designated critical habitat for the federally endangered San Diego fairy shrimp and arroyo toad and for the federally threatened spreading navarretia and coastal California gnatcatcher (Figure 4). The majority of the critical habitat for the San Diego fairy shrimp exists in the southeast area of the SW portion and almost the entire SE portion, primarily in the

vernal pool habitat. San Diego fairy shrimp has been identified within the northeast area of the SE portion. The critical habitat for arroyo toad exists within the Preserve along Santa Maria Creek within the eastern area of the SW portion, continuing into the SE portion. Arroyo toad has been identified within the Preserve along Santa Maria Creek west of Rangeland Road in the SW and NW portions. USFWS-designated critical habitat for spreading navarretia occurs in the northeastern area of the SE portion. Spreading navarretia was not identified on site during 2009 and 2010 surveys; however, it has been historically identified just east of the Preserve and suitable habitat for this species occurs throughout a large portion of the grassland habitat on site. The northern area of the NE portion and southeastern area of the NW portion includes USFWS-designated critical habitat for coastal California gnatcatcher. Coastal California gnatcatcher was not identified on site during 2009 surveys; however, this species has historically been detected in and adjacent to the Preserve.

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Chapter 4

Cultural Resources

San Diego County is characterized by a rich and varied historical past. Cultural resources that reflect this history consist of archaeological remains, historic buildings, artifacts, photographs, oral histories, Native American stories and legends, and public documents. This RMP identifies the known cultural resources within the Preserve and provides strategies for managing and protecting them.

Portions of the Preserve were surveyed on three separate occasions; the most recent in 2009 (Confidential Appendix B). Results from these studies were combined into a final archaeological survey report that was completed for the Preserve in compliance with the California Environmental Quality Act (CEQA) and County environmental guidelines to assist in continued and future land use and resource protection planning. The results can be found in the report titled *Cultural Resources Phase I Survey and Inventory, Ramona Grasslands Preserve, San Diego County, California*, dated March 2010 (Confidential Appendix B). This Phase I inventory involved site records searches, literature historic map reviews, Native American consultation, field survey, and resource documentation. The survey and inventory results were used in the preparation of this RMP.

4.1 Site History

The San Diego region contains over 10,000 years of documented human prehistory. Usually, the prehistoric period is divided into three periods: Early Period (San Dieguito tradition/complex), Archaic Period (Milling Stone Horizon, Encinitas tradition, La Jolla, and Pauma complexes), and Late Prehistoric Period (Cuyamaca and San Luis Rey complexes). These periods represent changes in demographics, subsistence and settlement patterning, and technology.

Ethnographically, the Preserve falls within Northern Diegueño (Kumeyaay/'Iipay) territory. The Kumeyaay are traditionally considered to be a collector/hunting society characterized by central-based nomadism. Prior to Spanish colonization the Santa Maria Valley was used by the Ipai/Kumeyaay as a winter village (known as Pa'mu) and as an extensive resource procurement area where native plants were harvested and animals were hunted. As documented in the cultural resources inventory report for the preserve (Appendix B), numerous 'Iipay place names have been identified within and in the region surrounding the Preserve.

Spanish presence in the Santa María Valley (Ramona) began in 1778 when a military expedition was sent to the powerful 'Iipay (northern Kumeyaay) village of *Pa'mu* to castigate what were perceived to be potential insurrectionists (Bancroft 1884:314–316, LeMenager 1989:17–18, Maggiano 1990). Spanish soldiers punished the 'Iipay severely; Jose Francisco Ortega, comandante of the San Diego Presidio, sent a contingent of soldiers to harass the *rancheria*, enabling the Spanish to regain control of the valley (LeMenager 1989:17–18, Maggiano 1990, Carrico 1992:17).

In 1818, the Santa Ysabel mission outpost (*asistencia*) was established several miles north of the Santa María Valley near the present day community of Santa Ysabel. After 1821, California came under Mexican rule, but Spanish culture and influence remained as the missions continued to operate as they had in the past, and laws governing the distribution of land were also retained for a period of time. During the secularization process of Mission San Diego in 1833, a Mexican soldier named

Narcisco Botello received the Santa María land grant. Unable to successfully ranch the land, Botello abandoned it, and in 1843 the grant passed to Jose Joaquin Ortega and his son-in-law, Captain Edward Stokes.

Over the next 30 years the land grant stayed in the Stokes family, and Edward Stokes' three sons, Alfredo, Adolphus (Adolfo), and Eduardo built several adobes on the Santa María Rancho including the Adolfo Stokes adobe that still stands east of the intersection of SR-78 and Magnolia Avenue, approximately 2 miles east of the Preserve (Bowen and Ransom 1975). Another adobe, that is often noted as a Stokes' adobe but was actually the Etcheverry Santa Maria adobe, which was destroyed several years ago, was located north of SR-67 and west of Hope Street on a slight rise immediately east of a present-day chicken ranch. This adobe was where Kearny camped before moving on to the Oak Grove camp. The carreta (cart) path that Kearny followed across the extreme northeastern portion of the Preserve can be associated with the Mexican period as a transportation corridor that linked Santa Ysabel and San Pasqual by way of the Santa Maria Valley.

Mexico's defeat in the Mexican-American War in 1848 initiated the American period, when Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo. Subsequently, land ownership by Mexicans living in California became a matter of considerable legal wrangling.

In 1872, having purchased or inherited the interests of his brothers, Adolfo Stokes sold all but 1,000 acres for \$40,000 to Juan Arrambide. Stokes retained the 1,000 acres in Valle de los Amigos, now known as Goose Valley (east-northeast of the Preserve, where his adobe house still stands). Arrambide joined forces with French immigrant Bernardo Etcheverry and developed the valley in fruit orchards, vineyards, and grain fields, and ran a prosperous sheep operation on several thousand acres in Santa Maria Valley (LeMenager 1989). By the late 1870s, Etcheverry had 12,000 head of sheep grazing in the valley. The operations of Arrambide and Etcheverry were probably the first intensive ranching activities to affect the vegetation and landscape of the valley (Beck 2004).

The 1880s and 1890s brought a steady flow of settlers to southern California, including the Santa Maria Valley with its little village of Ramona. During this time the Santa María land grant was sold off in large and small parcels to various land speculators, mostly from San Francisco, as well as a few homesteaders who tried their hand at ranching. Throughout the early 1900s the area gradually grew with an emphasis on ranching, horse stables, bee "farming," and many turkey ranches. Other early settlers like Augustus Barnett settled in the San Vicente Valley and helped to establish the newly subdivided settlement of Ramona (then Nuevo) whose town hall he helped build in 1893 (LeMenager 1990:102–103). For several decades from 1930 to the early 1970s, Santa María Valley and Ramona itself were known as the "Turkey Capital" of the world.

Gradually the farming and ranching lifestyle of the post-Civil War period of the late nineteenth century and early twentieth century faded away with the added influence of military development, beginning in 1916–1917 during World War I (Starr 1973). In the last 70 years, urban development has burgeoned along the coast and inland valleys. In recent decades the Ramona area has seen a spike in residential population density (Beck 2004, Pryde and Stutz 2004:240).

Beginning as early as 1846, and likely extending into prehistoric times, the Santa Maria Valley and Valle de Pamo, and therefore portions of the Preserve, served as important travel corridors in the region. Several historic trails, stagecoach and wagon routes, and roads are known to have crisscrossed through the Preserve.

4.2 Native American Consultation

Native American consultation was conducted on multiple occasions during various phases of the investigation and included field meetings with members of the San Pasqual Band, the Mesa Grande Band, and the Santa Ysabel Band as well as with Carmen Lucas of the Kwaaymii Laguna Band of Indians. Specific to the proposed Preserve, a letter was sent to the Native American Heritage Commission (NAHC) on April 24, 2009, requesting a review of the Sacred Lands files. A response letter from Mr. Dave Singleton of the NAHC, dated April 29, 2009, was received via fax on April 30, 2009. The search of the Sacred Lands files by the NAHC indicated the presence of Native American cultural resources in or within 0.5 mile of the Preserve.

The NAHC response also included a list of local Native American tribal members to contact for additional information on sacred lands. On June 5, 2009, letters were sent to the 12 listed Native American contacts requesting further consultation. One of the contacts listed by the NAHC, Mr. Clinton Linton of the Santa Ysabel Band of Diegueño Indians, responded and was retained contractually to provide Native American monitoring services for the field survey, through his company Red Tail Monitoring & Research. No responses have been received from the other 11 listed tribal members who were contacted.

During the field survey, a qualified monitor from Red Tail Monitoring & Research was present each day. Mr. Linton was also requested to provide input on Kumeyaay concerns and information regarding prehistoric resources present within the Preserve. At the completion of the field surveys, Mr. Linton submitted a letter report dated October 5, 2009, that listed recommended actions DPR should take to mitigate impacts on Native American cultural resources in the Preserve. All of the Native American correspondence as well as the letter report are contained in the cultural resources inventory report prepared for the Preserve (Confidential Appendix B).

4.3 Cultural Resources Descriptions

A total of 229 cultural resources, including 211 sites and 18 isolated finds, were identified within the preserve. Due to the large number of resources, they are presented in a table (Table 4-1). Resources are presented according to principal attribute categories as defined by the California State Historic Preservation Office (SHPO) *Instructions for Recording Historical Resources* (SHPO 1995), with modification. That format is used here as well. For prehistoric resources the attribute categories include lithic scatter (AP2), ceramic scatter (AP3), minor bedrock milling feature (AP4a), major bedrock milling feature (AP4fb), rock feature (AP8), quarry (AP12), minor habitation debris (AP15a), and major habitation debris (AP15b). Similarly, historic resource attribute categories include foundation (AH2), trash scatter (AH4), well (AH5), road/trail (AH7), dam (AH8), mine (AH9), wall/fence (AH11), and other (AH16). Definitions for each prehistoric and historic resource can be found in the cultural resources inventory report (Appendix B).

Table 4-1. Summary of Resources within the Preserve

Resource Type	Count
Prehistoric sites	171
Multi-component sites	6
Historic sites	29
Unknown sites	5
<i>Site subtotal</i>	<i>211</i>
Prehistoric isolates	18
Total	229

4.3.1 Prehistoric Archaeological Sites

The Preserve contains 171 known prehistoric archaeological sites (Table 4-2). As described below, these range from small lithic scatters, to bedrock milling features, to large prehistoric villages and habitation sites. The Preserve also contains 18 isolated prehistoric artifacts (Table 4-3).

Table 4-2. Prehistoric Sites within the Preserve

Site Trinomial CA-SDI-	Primary No. P-37-	Site Description
Lithic Scatter Sites		
19569	030804	Sparse debitage scatter (3 volcanic)
19525	030760	Sparse debitage scatter (5+ volcanics & quartz)
19552	030787	Sparse debitage scatter (6 volcanics)
16564	025024	Sparse debitage scatter (6+ quartz & quartzite)
16614	025075	Sparse debitage scatter (volcanic, quartz, quartzite)
16617	025078	Sparse debitage scatter (quartz)
19547	030782	Sparse debitage scatter (10+ volcanics, quartz & quartzite)
16576	025037	Lithic scatter (quartz debitage & biface fragment)
16595	025056	Cache of quartz material, core, & debitage
19546	030781	Debitage scatter (50+ volcanics & quartz)
19553	030788	Lithic scatter (10 quartz, 45 volcanic debitage & 1 granitic mano)
19594	030829	Debitage scatter (50+ volcanics & quartz)
19570	030805	Lithic scatter (100+ volcanics, quartz & quartzite debitage; cores, hammerstones, scraper), and 1 bedrock milling feature (1 slick)
Ceramic Scatter Sites		
19560	030795	Sparse ceramic scatter (12 Tizon Brown Ware sherds) and 3 flakes
19566	030801	Sparse ceramic scatter (Tizon Brown Ware) and 1 flake
Minor Bedrock Milling Sites		
7318	007318	Bedrock milling site with 2 milling features (3 slicks) & 1 mano
7319	007319	Bedrock milling site with 1 milling feature (1 slick)
7326	007326	Bedrock milling site with 2 milling features (6 slicks, 1 basin), 1 mano & a few flakes
7764	007764	Bedrock milling site with 4 milling features (8 slicks, 1 basin)

Site Trinomial CA-SDI-	Primary No. P-37-	Site Description
10261	010261	Bedrock milling site with 3+ milling features (20+ slicks)
10262	010262	Bedrock milling site with 7+ milling features (15+ slicks, 1 basin) & serrated biface
12041	012041	Bedrock milling site with 1 milling feature (4 slicks)
14095	014304	Bedrock milling site with 1 milling feature (14 slicks)
14096	014305	Bedrock milling site with 1 milling feature (4 slicks)
15979	023866	Bedrock milling site with 1 milling feature (1 slick) & rock feature
15980	023867	Bedrock milling site with 2 milling features (7 slicks)
16076	024220	Bedrock milling site with 4 milling features (4 slicks & anvil)
16077	024221	Bedrock milling site with 1 milling feature (1 slick)
16078	024222	Bedrock milling site with 1 milling feature (3 slicks)
16079	024223	Bedrock milling site with 3 milling features (3 slicks)
16080	024224	Bedrock milling site with 2 milling features (4 slicks, 1 basin)
16081	024225	Bedrock milling site with 2 milling features (3 slicks)
16097	024283	Bedrock milling site with 2 milling features (3 slicks)
16173	024391	Bedrock milling site with 1 milling feature (5 slicks)
16563	025023	Bedrock milling site with 1 milling feature (2 slicks) & 1 flake
16566	025027	Bedrock milling site with 1 milling feature (2 slicks)
16568	025029	Bedrock milling site with 3 milling features (1 slick, 2 basins) & debitage (3+)
16569	025030	Bedrock milling site with 3 milling features (3 slicks)
16572	025033	Bedrock milling site with 1 milling feature (1 slick), 2 flakes & 1 biface fragment
16574	025035	Bedrock milling site with 2 milling features (3 slicks)
16577	025038	Bedrock milling site with 2 milling features (2 slicks, poss. basin)
16583	025044	Bedrock milling site with 2 milling features (slicks)
16584	025045	Bedrock milling site with 2 milling features (2 slicks)
16585	025046	Bedrock milling site with 2 milling features (4+ slicks)
16590	025051	Bedrock milling site with 2 milling features (slicks)
16593	025054	Bedrock milling site with 1 milling feature (slicks), 2 flakes, 1 mano
16594	025055	Bedrock milling site with 2 milling features (slicks)
16597	025058	Bedrock milling site with 2 milling features (6+ slicks)
16599	025060	Bedrock milling site with 3 milling features (3 slicks)
16600	025061	Bedrock milling site with 3 milling features (3+ slicks)
16601	025062	Bedrock milling site with 1 milling feature (1 slick)
16605	025066	Bedrock milling site with 1 milling feature (3 slicks)
16606	025067	Bedrock milling site with 2 milling features (slicks)
16607	025068	Bedrock milling site with 2 milling features (slicks)
16608	025069	Bedrock milling site with 1 milling feature (1 slick, 1 basin)
16609	025070	Bedrock milling site with 1 milling feature (1 incipient mortar)
16616	025077	Bedrock milling site with 1 milling feature (1 slick)
16622	025083	Bedrock milling site with 2 milling features (slicks)
16623	025084	Bedrock milling site with 2 milling features (slicks, 1 mortar)

Site Trinomial CA-SDI-	Primary No. P-37-	Site Description
16624	025085	Bedrock milling site with 4 milling features (slicks), a stacked rock ring & cairn
16625	025086	Bedrock milling site with 1 milling feature (2 basins)
16632	025093	Bedrock milling site with 4 milling features (slicks) & 1 flake
18918	029578	Bedrock milling site with 1 milling feature (3 slicks)
19526	030761	Bedrock milling site with 1 milling feature (2 slicks)
19527	030762	Bedrock milling site with 2 milling features (5+ slicks) & 1 mano
19528	030763	Bedrock milling site with 2 milling features (7 slicks)
19529	030764	Bedrock milling site with 3 milling features (10 slicks) & 1 flake
19530	030765	Bedrock milling site with 3 milling features (5 slicks)
19531	030766	Bedrock milling site with 2 milling features (6 slicks)
19533	030768	Bedrock milling site with 3 milling features (3 slicks) & 1 sherd
19534	030769	Bedrock milling site with 1 milling feature (1 slick)
19535	030770	Bedrock milling site with 1 milling feature (1 slick)
19536	030771	Bedrock milling site with 2 milling features (6 slicks)
19537	030772	Bedrock milling site with 2 milling features (3 slicks)
19538	030773	Bedrock milling site with 4 milling features (5 slicks)
19540	030775	Bedrock milling site with 1 milling feature (1 slick) & 1 flake
19543	030778	Bedrock milling site with 3 milling features (3 slicks, 1 mortar)
19544	030779	Bedrock milling site with 4 milling features (15+ slicks) & granary base
19545	030780	Bedrock milling site with 1 milling feature (3 slicks)
19548	030783	Bedrock milling site with 3 milling features (3 slicks) & 1 flake
19549	030784	Bedrock milling site with 1 milling feature (1 slick)
19550	030785	Bedrock milling site with 2 milling features (2 slicks) & 1 sherd
19555	030790	Bedrock milling site with 2 milling features (4+ slicks)
19556	030791	Bedrock milling site with 1 milling feature (4+ slicks)
19559	030794	Bedrock milling site with 1 milling feature (1 slick), 1 granary base & 2 sherds
19561	030796	Bedrock milling site with 1 milling feature (5 slicks)
19562	030797	Bedrock milling site with 1 milling feature (1 slick)
19563	030798	Bedrock milling site with 1 milling feature (5 slicks) & 3 possible granary bases
19564	030799	Bedrock milling site with 2 milling features (slicks) & 1 flake
19565	030800	Bedrock milling site with 1 milling feature (1 slick), 1 granary base & 1 flake
19567	030802	Bedrock milling site with 4 milling features (4 slicks)
19568	030803	Bedrock milling site with 1 milling feature (1 slick)
19571	030806	Bedrock milling site with 3 milling features (15+ slicks)
19572	030807	Bedrock milling site with 2 milling features (1 slick, 1 mortar)
19573	030808	Bedrock milling site with 4 milling features (4 slicks) & hammerstone
19574	030809	Bedrock milling site with 2 milling features (2 slicks)
19575	030810	Bedrock milling site with 1 milling feature (5+ slicks)
19576	030811	Bedrock milling site with 7 milling features (17 slicks)
19577	030812	Bedrock milling site with 3 milling features (6 slicks)

Site Trinomial CA-SDI-	Primary No. P-37-	Site Description
19578	030813	Bedrock milling site with 1 milling feature (3 slicks)
19579	030814	Bedrock milling site with 1 milling feature (1+ slicks)
19580	030815	Bedrock milling site with 1 milling feature (2 slicks)
19581	030816	Bedrock milling site with 1 milling feature (1 slick)
19583	030818	Bedrock milling site with 1 milling feature (1 slick)
19584	030819	Bedrock milling site with 1 milling feature (2+ slicks)
19585	030820	Bedrock milling site with 2 milling features (6+ slicks)
19586	030821	Bedrock milling site with 1 milling feature (2 slicks, 1 basin)
19587	030822	Bedrock milling site with 1 milling feature (2 slicks)
19588	030823	Bedrock milling site with 3 milling features (7+ slicks)
19589	030824	Bedrock milling site with 1 milling feature (2 mortars)
19590	030825	Bedrock milling site with 3 milling features (5+ slicks)
19591	030826	Bedrock milling site with 2 milling features (2 slicks)
Major Bedrock Milling Sites		
7320	7320	Bedrock milling site with 2 milling features (3 slicks), 9 manos, 1 scraper plane & limited subsurface deposit
7321	7321	Bedrock milling site with 18 milling features (42 slicks) & limited subsurface deposit
7324	7324	Bedrock milling site with 9 milling features (29 slicks), possible fertility feature & subsurface deposit
7760	7760	Bedrock milling site with 4 milling features (7 slicks), granary base, sparse debitage & ceramic scatter
7767	7767	Bedrock milling site with 5 milling features (17 slicks, 3 mortars), 1 mano, sparse debitage scatter & limited subsurface deposit
7768	7768	Bedrock milling site with 9 milling features (38 slicks), sparse debitage scatter & limited subsurface deposit (may be associated with SDI-7770 across the creek)
10258	010258	Bedrock milling site with 16 milling features (12+ slicks, 2 basins, 1 mortar) & sparse debitage scatter
11086	011086	Bedrock milling site with 11 milling features (55 slicks, 5 basins), sparse debitage scatter & limited subsurface deposit
11472	011472	Bedrock milling site with 1 milling feature (26 slicks, 13 basins)
16174	24392	Bedrock milling site with 1 milling feature (4 slicks, 2 basins)
16565	25025	Bedrock milling site with 3 milling features (6 slicks, 1 basin) & debitage (10+)
16567	25028	Bedrock milling site with 5 milling features (6+ slicks) & debitage (3+)
16596	25057	Bedrock milling site with 2 milling features (4+ slicks) & debitage scatter
16598	25059	Bedrock milling site with 2 milling features (3+ slicks) & sparse debitage scatter
16602	25063	Bedrock milling site with 8 milling features (slicks), sparse debitage scatter
16603	25064	Bedrock milling site with 3 milling features (slicks), sparse debitage & 1 mano
16604	25065	Bedrock milling site with 4 milling features (slicks) & sparse debitage scatter
16612	25073	Bedrock milling site with 4+ milling features (slicks)
16615	25076	Bedrock milling site with 3 milling features (slicks) & debitage (10)

Site Trinomial CA-SDI-	Primary No. P-37-	Site Description
16620	25081	Bedrock milling site with 12 milling features (slicks & basins)
16621	25082	Bedrock milling site with 7 milling features (slicks)
16626	25087	Bedrock milling site with 3 milling features (slicks) & debitage
16628	25089	Bedrock milling site with 3 milling features (slicks), 2 bifaces & debitage (of 3 materials)
16629	25090	Bedrock milling site with 3 milling features (slicks)
16630	25091	Bedrock milling site with 4 milling features (slicks), 3 flakes & 1 core
17142	25771	Bedrock milling site with 1 milling feature (15+ slicks, 5 basins, 1 mortar) & debitage
17143	25772	Bedrock milling site with 5+ milling features (8+ slicks) & sparse debitage
17144	25773	Bedrock milling site with 5+ milling features (slicks, basins, mortars) & sparse lithic scatter
19539	37-030774	Bedrock milling site with 6 milling features (64 slicks, 4 basins, 1 mortar), 1 core, 1 hammerstone, 4 manos
19542	37-030777	Bedrock milling site with 6 milling features (15+ slicks, 9 basins, 3 mortars), 2 manos & 2 flakes
19551	37-030786	Bedrock milling site with 3 milling features (8 slicks), 3 granary bases & sparse debitage
19593	37-030828	Bedrock milling site with 3 milling features (14 slicks, 2 basins) & 1 flake
Prehistoric Quarry Sites		
16570	25031	Numerous concentrations of good quality quartz debris, cores & hammerstones
16571	25032	Extensive quarrying debris of good quality milky quartz & 3 quartz hammerstones on small knoll
16573	25034	Two test areas of poor grade milky quartz; a few flakes and 1 quartz hammerstone observed
16578	25039	Possible early stage reduction debris of poor grade milky quartz on a knoll top; possible biface fragment in association
Minor Habitation Sites		
7325	007325	Site with 5 bedrock milling features (31 slicks), milling tools & subsurface deposit
7751	007751	Site with 4 bedrock milling features (11 slicks) & subsurface deposit
7752	007752	Site with 4 bedrock milling features (12 slicks) & limited subsurface deposit
7753	007753	Site with 15 bedrock milling features (91 slicks, 12 basins, 10 mortars, 1 anvil), debitage scatter & moderate subsurface deposit
7758	007758	Site with 5 bedrock milling features (16 slicks, 2 basins, 1 mortar), 1 mano, debitage & subsurface deposit
16592	025053	Site with 8 bedrock milling features (slicks, basins), manos, hammerstone, debitage & sherds
19532	030767	Site with 10 bedrock milling features (14 slicks, 2 mortars), sparse debitage, 1 core & sherds
19554	030789	Site with 18 bedrock milling features (45 slicks, 4 basins, 6 mortars), sparse debitage, sherds, milling and pounding tools, & dart point base
19582	030817	Site with 2 bedrock milling features (4 slicks, 1 mortar), debitage scatter (6 materials) & arrow point

Site Trinomial CA-SDI-	Primary No. P-37-	Site Description
Major Habitation Sites		
7322	007322	Site with 20 bedrock milling features (194 slicks, 23 basins, 7 mortars & 1 acorn anvil), arrow pt., debitage & ceramic scatter, & subsurface deposit
7754	007754	Site with 10 bedrock milling features (43 slicks, 4 basins, 1 mortar), 1 knife, 1 chopper, 5 manos, 2 metates, debitage & subsurface deposit
7755	007755	Site with 59 bedrock milling features (435 slicks, 88 basins, 13 mortars), 1 mano, ceramic & lithic scatter, & subsurface deposit
7756	007756	Site with 83 bedrock milling features (359 slicks, 65 basins, 16 mortars, 1 anvil), 36 cuppules, 2 manos, ceramic & lithic scatter, & subsurface deposit
7757	007757	Site with 48 bedrock milling features (160 slicks, 34 basins, 14 mortars), ceramic & lithic scatter, & subsurface deposit
7759	007759	Site with 22 bedrock milling features (203 slicks, 33 basins, 8 mortars, 1 anvil), manos, ceramic & lithic scatter, & subsurface deposit
16586	025047	Site with 5+ bedrock milling features, quartz debitage, hammerstone, mano, ceramics, faunal bone & midden soil
16618	025079	Site with 23 bedrock milling features (slicks, basins, mortars), quartz debitage, biface, hammerstones, manos, ceramics, & midden soil
16631	025092	Site with 6+ bedrock milling features (slicks), debitage (3 materials), a hammerstone, manos & midden soil
17171	025816	Site with 70 bedrock milling features (476 elements: slicks, basins, mortars), debitage, arrow points, tools, sherds, bone tools, marine shell & subsurface deposit
19541	030776	Site with 14 bedrock milling features (20+ slicks, 9 basins, 1 mortar), 2 cores, 1 scraper, debitage & sherds
19558	030793	Site with 7 bedrock milling features (12+ slicks), sparse debitage, arrow points, sherds, mano, bowl rim, burned shell bead, burned bone fragments & marine shell
19592	030827	Site with 14 bedrock milling features (45 slicks, 7+ basins), lithic & ceramic scatter & bone
Rock Feature Sites		
19557	030792	Four circular stacked rock circles

Table 4-3. Prehistoric Isolates within the Preserve

Primary No. P-37-	Isolate Description
030751	Flake; quartz
030754	Flake; quartz; 4 cm
030755	Flake; grayish-green volcanic; 1 cm wide by 1.5 cm long
030756	Flake; quartz; 1.8 cm long by 1.5 cm wide
030757	Flake; volcanic, grayish-blue; 5 cm long by 3 cm wide
030746	Scraper plane; porphyritic volcanic; 10.2 cm by 10.5 cm by 7.1 cm
030749	Arrow point; "deep V" base Cottonwood Triangular form; banded cryptocrystalline material; 2.8 cm long

Primary No. P-37-	Isolate Description
030750	Arrow point base; concave base Cottonwood Triangular form; missing 1 tang; milky quartz ; 2.4 cm long
030752	Arrow point; "deep V" base Desert Side-notched form; finely serrated margins; black volcanic; missing tip; est. 4 cm long
030758	Arrow point base; concave base Cottonwood Triangular form; obsidian; est. 2.5 cm long
030747	Hammerstone; unmodified Eocene porphyritic volcanic cobble; battered on end; 6 by 7 cm; fire-blackened
030748	Mano fragment; bifacial; granitic; differential use-wear
030753	Mano; bifacial; Eocene porphyritic volcanic cobble; light-moderate use; battered on 1 end; 10 cm by 11.3 cm by 5.1 cm thick
025026	Mano; unifacial; granitic; pecked; 9cm by 13 cm by 7.5 cm thick
025095	Mano fragment
025098	Mano; unifacial, minimal wear
025099	Mano fragment; unifacial; battered on end
030759	Tizon Brownware cached jar (scattered down slope); est. 24 cm dia. mouth

4.3.2 Prehistoric and Historic Multi-Component Sites

The Preserve contains six resources having both a prehistoric and a historic component. These multi-component resources are outlined below in Table 4-4.

Table 4-4. Multi-Component Sites within the Preserve

Site Trinomial CA-SDI-	Primary No. P-37-	Site Description
15981	23868	Prehistoric bedrock milling site with 5 milling features (24 slicks) & a mano, and historic pieces of aqua and milk glass & porcelain cup in boulder crevices
16580	25041	Prehistoric bedrock milling site with 4 milling features (9 slicks) and historic scatter of glass, ceramics, and cans among boulders
16627	25088	Prehistoric bedrock milling site with 15 milling features (slicks), sparse debitage scatter and historic scatter of food cans among boulders
10259	010259	Site with 21 bedrock milling features (44+ slicks, 9 basins, 11 mortars), sparse debitage, sherds, mano fragments & limited subsurface deposit, and historic corral consisting of stacked rock walls and associated barbed wire and wooden post fencing.
16581	025042	Prehistoric 13+ bedrock milling features (50+ elements) & sparse debitage and historic scatter of glass, ceramics, and food cans among boulders
16175	024393	Prehistoric 23 bedrock milling features (40+ slicks, 2 basins, 2 mortars), debitage, flaked tools, arrow points, sherds, stone bowl, manos, faunal bone and historic house foundation (38 by 40 ft.) and brick chimney of the Gildred vacation house – built in 1951 and destroyed by fire in 1998; also associated brick BBQ some 10 ft. north of the house that has a "Metate Park" memorial plaque affixed to the south side

4.3.3 Historic Sites

The preserve contains 29 historic era resources. Most of these are trash scatters, but roads, buildings, structures, and other resource types are also present (Table 4-5).

Table 4-5. Historic Sites within the Preserve

Site Trinomial CA-SDI-	Primary No. P-37-	Site Description
Historic Foundation Sites		
8249	008249	Post-1925 homestead site with 12 by 28 ft., 4 ft. deep, cellar depression and also stone wall segments (75 and 24 ft.), associated trash scatter, and eucalyptus and olive trees. Only landscape features exist within the Preserve; the structural features are all outside of the Preserve.
-	030841	Subterranean 10 ft. 6 in. by 13 ft. 8 in. unmortared stacked rock walls, possibly representing a cellar
Historic Trash Scatter Sites		
16575	025036	Scatter of bottle glass & ceramics along a dirt road next to a small 15 by 15 ft. burned corral structure
16579	025040	Sparse scatter of glass, ceramics, and metal items in graded field
16582	025043	Scatter of glass, ceramics, food cans, and license plate among boulders
16591	025052	Scatter of glass, ceramics, food & tobacco cans around boulders; glass jelly jar with 1903 Giles closure patent date
16610	025071	Sparse scatter of glass, ceramics, and cans around boulders
16611	025072	Small scatter of beverage bottles & cans and metal barrel hoop around boulders
16613	025074	Concentration of food, motor oil, and paint cans, condiment bottles, window glass, juicer, and transferware ceramics at base of outcrop
16619	025080	Dense concentration of post-1940 liquor, food & toiletry bottles, food cans, ceramics, light bulbs, shoe parts on the side of a knoll
-	030833	Pile of discarded bricks; possibly associated with historic house structure located along fork off of pre-1903 County Survey Road 97
-	030834	Sparse scatter of post-1932 glass jars & bottle and food cans
-	030835	Large pre-1915 scatter of glass bottles & vessels, ceramic ware, and saw-cut large mammal bone
-	030838	Small scatter of post-1950 food & beverage cans among boulders
Single Family Property		
-	025100	Single story L-shaped house of no distinct period or type, built on a knoll prior to 1954. Wood-sided main wing with brick additions. Associated wooden windmill and well, and rectangular concrete cistern.
-	025101	Mobile home/trailer with a square addition and wooden deck, built prior to 1954. This resource has been removed from the Preserve.

Site Trinomial CA-SDI-	Primary No. P-37-	Site Description
-	025102	Single story wood-frame house with a side-gable roof and decorative endboards of no distinct period or type, built prior to 1954. Numerous associated outbuildings, wooden corral, wooden wagon, and ornamental trees – the Davis_Eagle Ranch complex.
Historic Wells or Cisterns		
-	030837	Semi-subterranean concrete water catchment structure or guzzler built in 1950.
-	030842	Unlined well measuring 6 ft. deep with milled lumber used as a partial cover
Historic Roads		
-	030843	A half-mile segment of a historic dirt road connecting County Survey Road 97 to an old homestead.
-	030845	County Survey Road 97
Historic Dams		
-	030831	Earthen dam built across a small intermittent drainage
-	030832	USGS gaging station with associated dam across Santa Monica Creek
Historic Mines		
-	030844	Pre-1918 mining operation known as the Bour Deposit
Other		
-	024571	Cobble rubble in concentrations dispersed over approximately 500 acres, resulting from WWII bombing practice activities.
-	025097	Pre-1870 survey section boundary marker (No. 9) consisting of a stake in a mound of cobbles located in the southeast “corner” of Section 7 of the USGS topographic map. Has been added to by metal pipe with plastic center.
-	030836	Twelve-strand metal cable anchors affixed into bedrock for some form of conveyance that crossed Santa Maria Creek, located approximately 950 ft. south of the (burned out) Gildred house.
-	030839	Historic graffiti carved into granitic bedrock consisting of: “J H J” over “JAN. 1919” on one boulder, and seven lines of markings on the inside surface of a large eroded-out boulder. These markings appear to read: “S.S. 74” over “H” over “J H J” over “A D” over “D H” over “G. B. W. ‘25” over “F T” over “W D”. The Js are crossed like lower case Ts and the F-like symbols are backwards. Dates 1874, 1919, and 1925, but no correlation to local property owners in the area could be made.
-	030846	Detached metal tub of unknown function that lies in a drainage, some 119 ft. downstream from an earthen dam (P-37-030831). Measures approx. 2 ft. on each side, with riveted side seams and rim edge, as well as flange of threaded pipe (positioned some 3 in. below the rim). Solder is present around the rim rivets and inside of the seams, and at the base of the pipe.

4.3.4 Resources of Unknown Age

The five resources of unknown age (Table 4-6) likely date to the historic period, but because of a lack of associated time diagnostic elements, their age cannot be confirmed.

Table 4-6. Resources of Unknown Age within the Preserve

Primary No. P-37-	Resource Description
024554	Linear rock alignment of two parallel rows of rocks embedded in the dirt in a field. Recorded as possible prehistoric astronomical feature associated with nearby split rock. Probably natural formation.
025094	A 1 by 2 m granitic rock pile located on a slope (not near agricultural field)
025096	A granitic rock pile against bedrock located on a slope, due south from P-37-025094 (and west of P-37-030830)
030830	Cluster of granitic rock piles, perhaps enclosures; within 250 m of two other piles (P-37-025094 & -025096)
030840	Semi-circular stacked rock wall incorporated into granitic bedrock

4.4 Resource Significance

The Preserve contains 229 recorded cultural resources. However, 18 of these are isolates, which are not considered significant. Previous studies have tested and evaluated 40 of the resources. Of these 40 resources, 13 have been found significant, while the remaining 27 were evaluated as not significant (see Table 4-7). Of the significant sites, 10 have been found significant under the County's Resource Protection Ordinance. The remaining 171 cultural resources have not been formally evaluated and are therefore considered significant.

Table 4-7. Evaluated Cultural Resources within the Preserve

Site No.	Site Description	Study Type	Eval. Results	Management Recommendation
CA-SDI-				
7318	Minor bedrock milling site & 1 mano	XPI	NS	No mitigation measures required
7319	Minor bedrock milling site	XPI	NS	No mitigation measures required
7320	Major bedrock milling site with sparse surface artifacts & limited subsurface deposit	PII	NS	No mitigation measures required

Site No.	Site Description	Study Type	Eval. Results	Management Recommendation
7321	Major bedrock milling site with limited subsurface deposit	PII	NS	Avoid & preserve. Though not found significant as an individual site, this resource is part of the village of Pa'mu. If the village of Pa'mu is nominated as an archaeological district, it likely would be RPO significant, and this resource would be an element of that district
7322	Major habitation site with sparse surface artifacts & subsurface deposit	PII	S	RPO significant; Avoid & preserve
7324	Major bedrock milling site, possible fertility feature & subsurface deposit	PII	S	Avoid & preserve, or Phase III DR. Note this resource may be RPO significant, but it has not been evaluated for such significance. If it is RPO significant, then the recommendation would be avoid & preserve. Further, it is part of the village of Pa'mu.
7325	Minor habitation site with milling tools & subsurface deposit	PII	S	RPO significant; Avoid & preserve
7326	Minor bedrock milling site with sparse surface artifacts & limited subsurface deposit	PII	NS	Avoid & preserve. Though not found significant as an individual site, this resource is part of the village of Pa'mu. If the village of Pa'mu is nominated as an archaeological district, it likely would be RPO significant, and this resource would be an element of that district
7751	Minor habitation site with subsurface deposit	PII	S	RPO significant; Avoid & preserve
7752	Minor habitation site with subsurface deposit	PII	NS	Avoid & preserve. Though not found significant as an individual site, this resource is part of the village of Pa'mu. If the village of Pa'mu is nominated as an archaeological district, it likely would be RPO significant, and this resource would be an element of that district
7753	Minor habitation site with subsurface deposit	PII	S	RPO significant; Avoid & preserve
7754	Major habitation site with surface artifacts & subsurface deposit	PII	S	Avoid & preserve, or Phase III DR

Site No.	Site Description	Study Type	Eval. Results	Management Recommendation
7755	Major habitation site with surface artifacts & subsurface deposit	PII	S	RPO significant; Avoid & preserve
7756	Major habitation site with surface artifacts & subsurface deposit	PII	S	RPO significant; Avoid & preserve
7757	Major habitation site with surface artifacts & subsurface deposit	PII	S	RPO significant; Avoid & preserve
7758	Minor habitation site with sparse surface artifacts & subsurface deposit	PII	S	RPO significant; Avoid & preserve
7759	Major habitation site with surface artifacts & subsurface deposit	PII	S	RPO significant; Avoid & preserve
7760	Major bedrock milling site, granary base & sparse surface artifacts	XPI	NS	No mitigation measures required
7764	Minor bedrock milling site	XPI	NS	Avoid & preserve. Though not found significant as an individual site, this resource is part of the village of Pa'mu. If the village of Pa'mu is nominated as an archaeological district, it likely would be RPO significant, and this resource would be an element of that district
7767	Major bedrock milling site with sparse surface artifacts & limited subsurface deposit	PII	NS	Avoid & preserve. Though not found significant as an individual site, this resource is part of the village of Pa'mu. If the village of Pa'mu is nominated as an archaeological district, it likely would be RPO significant, and this resource would be an element of that district
7768	Major bedrock milling site with sparse surface artifacts & limited subsurface deposit	PII	S	RPO significant; Avoid & preserve
10258	Major bedrock milling site, sparse debitage scatter, historic rock walls & barbed wire fence	XPI	NS	No mitigation measures required
10259	Minor habitation site with sparse surface artifacts & limited subsurface deposit	XPI	NS	No mitigation measures required
10261	Minor bedrock milling site	XPI	NS	No mitigation measures required
10262	Minor bedrock milling site & serrated biface	XPI	NS	No mitigation measures required
11086	Major bedrock milling site with sparse surface artifacts & limited subsurface deposit	PII	NS	No mitigation measures required
11472	Major bedrock milling site	PII	NS	No mitigation measures required
14095	Minor bedrock milling site	PII	NS	No mitigation measures required

Site No.	Site Description	Study Type	Eval. Results	Management Recommendation
14096	Minor bedrock milling site	PII	NS	No mitigation measures required
15979	Minor bedrock milling site	XPI	NS	No mitigation measures required
15980	Minor bedrock milling site	XPI	NS	No mitigation measures required
15981	Major bedrock milling site, 1 mano, & sparse historic trash scatter	XPI	NS	Avoid & preserve. Though not found significant as an individual site, this resource is part of the village of Pa'mu. If the village of Pa'mu is nominated as an archaeological district, it likely would be RPO significant, and this resource would be an element of that district
16076	Minor bedrock milling site	XPI	NS	Avoid & preserve. Though not found significant as an individual site, this resource is part of the village of Pa'mu. If the village of Pa'mu is nominated as an archaeological district, it likely would be RPO significant, and this resource would be an element of that district
16077	Minor bedrock milling site	XPI	NS	No mitigation measures required
16078	Minor bedrock milling site	XPI	NS	No mitigation measures required
16079	Minor bedrock milling site	XPI	NS	No mitigation measures required
16080	Minor bedrock milling site	XPI	NS	No mitigation measures required
16081	Minor bedrock milling site	XPI	NS	No mitigation measures required
17171	Major habitation site with surface artifacts & subsurface deposit	XPI	S	Avoid & preserve, or Phase II TE
18918	Minor bedrock milling site	XPI	NS	No mitigation measures required

Study type: PI = Phase I survey; XPI = extended Phase I testing; PII = Phase II testing

Evaluation results: NS = not significant; S = significant

Management Recommendation: TE = test & evaluation; DR = data recovery

5.1 Management Goals and Objectives

Management of the natural and cultural resources within the Preserve will be guided by the general goals and objectives of both the County and the North County Plan.

5.1.1 Draft North County Plan Goals

The Draft North County Plan provides both general and preserve segment-specific goals and objectives. The Preserve is located within a PAMA and designated as a preserve area and is part of the Ramona Grasslands Core and Linkage. The overall MSCP goal is to maintain and enhance biological diversity in the region and conserve viable populations of endangered, threatened, and key sensitive species and their habitat, thereby preventing local extirpation and ultimate extinction. This is intended to minimize the need for future listings, while enabling economic growth in the region.

In order to maintain the biodiversity and ecosystem health in the region while ensuring quality of life and economic growth opportunities, the Draft North County Plan incorporates the following underlying biological and social goals:

- Develop a preserve system that will preserve ecosystem functions and values, maintain the range of natural biological communities and native species within the Plan area and contribute to the recovery of endangered, threatened, and sensitive species and their habitats.
- Protect the quality of life for residents and visitors by maintaining the scenic beauty, natural biological diversity, cultural resources, and recreational opportunities within the Plan area.

In addition, the Draft Framework RMP provides specific conservation goals for the Ramona Grasslands Core and Linkage:

- Protect the following sensitive species: Stephens' kangaroo rat, San Diego thornmint, California gnatcatcher, and burrowing owl.
- Minimize impacts to the following sensitive habitats: alkali playas, vernal pools (including their watersheds), and grasslands, including those that are loamy (known to support Stephens' kangaroo rat and raptors) or with clay soil (known to support San Diego thornmint).
- Protect rock outcrops in grasslands utilized by sensitive species, such as raptors.
- Protect riparian and upland habitat along Santa Maria Creek for water quality and sensitive species such as: arroyo toad, southwestern pond turtle, and tricolored blackbird.
- Removal of invasive nonnative species (e.g., Tamarix, Arundo, brown-headed cowbirds, crayfish, bull frogs, etc.), particularly to enhance habitat quality for sensitive species along Santa Maria Creek corridor.
- Removal of invasive nonnative species to ensure long-term persistence of native alkali playa plant species, loamy grasslands, clay-soil grasslands, and vernal pools.

- Maintain connectivity through natural and agricultural lands for wildlife movement of large and medium sized mammals, songbirds, and raptors between preserved habitats and preserves to the southeast, across SR-67.

5.1.2 Management Directives and Implementation Measures

Based on the above management goals and objectives, recommended management directives have been identified. In accordance with the Draft Framework RMP, specific conservation actions that will be performed on preserve lands fall into three categories: land stewardship, adaptive management actions, and biological monitoring. In general, land stewardship consists of the activities necessary for maintaining the integrity (i.e., functional ecosystem and protected resources) of preserved lands. Adaptive management actions include activities that are designed to benefit specific ecological features (e.g., certain species, vegetation communities, or ecological processes) based upon information that has been gained through casual observations or scientific monitoring. Biological monitoring refers to focused assessments of species or vegetation communities.

The ASMDs have been designated as Priority 1 or Priority 2. This designation recognizes the fact that many of the directives cannot be immediately implemented, but instead will occur over the life of the Draft North County Plan. Priority designations are as follows:

Priority 1: Directives that protect the resources in the Preserve and the North County Plan Preserve, including management actions that are necessary to ensure that sensitive species are adequately protected.

Priority 2: Directives other than those required for sensitive species status and other long-term items that may be implemented during the life of the North County Plan as funding becomes available.

The Draft Framework RMP provides habitat-specific management and monitoring guidelines that address the major factors that impact specific habitat types including: riparian, marsh, and wet meadow habitat; coastal sage scrub, chaparral, and grassland habitat; oak woodlands and coniferous forest; and vernal pools. The major factors that can impact these habitats include: hydrology, invasive nonnative plant and animal species, and fire. Species that are most likely to benefit from these habitat based management and monitoring guidelines are detailed for each habitat type. Additionally, the Draft North County Plan conservation analysis for specific species (such as narrow endemics, threatened, or endangered species) provides species-specific management and monitoring guidance.

This RMP includes management directives and implementation measures to meet Draft North County Plan goals and objectives under the following elements: (A) Biological Resources, (B) Vegetation Management, (C) Public Use, Trails, and Recreation, (D) Operations and Facility Maintenance, and (E) Cultural Resources. Appendix D lists all management directives and implementation measures including a timeframe and responsible parties.

5.2 Biological Resources Element (A)

5.2.1 Biological Monitoring

Biological monitoring will be performed on site to gather information that will assist DPR in making land management decisions to conform to Draft North County Plan goals and objectives, as well as DPR objectives. The biological monitoring that will occur will be designed to guide decisions at the individual preserve level. The first year of monitoring has been conducted (baseline surveys), and the results are included as Appendix A. Additional monitoring results will be incorporated into standalone monitoring reports. These reports may recommend revisions to the management directives contained within this RMP.

Monitoring at the preserve scale is focused on obtaining information for management purposes, but can be useful for subregional and ecoregional monitoring assessment as well. DPR will monitor the status and trends of covered species (in accordance with the Draft Framework RMP) and collect data on key environmental resources within preserves to select, prioritize, and measure the effectiveness of management activities. In most instances, the array of threats or stressors on preserved habitats, their mechanisms of action, and the responses of the habitats and associated species are not completely understood at this time. Therefore, ASMDs must comprehensively address resource management issues for each preserve. Information collected within each preserve will be aggregated for analysis at the subregion and ecoregion scales.

The key to successful monitoring at the individual preserve level is: close coordination with stakeholder groups that are performing subregional monitoring; sharing of data, future plans, and schedules; and keeping abreast of monitoring methods as they are developed. To ensure uniformity in the gathering and treatment of data, a San Diego Association of Governments (SANDAG) land management working group, San Diego Management and Monitoring Program, has been formed and will designate a land manager who will assist jurisdictions in coordinating monitoring programs, analyzing data, and providing other information and technical assistance. The County is an active participant in the development of monitoring methods for the Draft North County Plan. Once these methods are fully developed and, as feasible, they will be adapted for North County Plan preserves.

Currently, DPR will follow the habitat- and species-specific monitoring requirements outlined in the South County Plan and Draft North County Plan. Additionally, DPR will utilize the San Diego State University (SDSU) Prioritization Report for South County Plan covered species, and follow USGS monitoring protocols for rare plants (McEachern et al. 2007), SDSU habitat and vegetation monitoring protocols (Deutschman and Strahm 2009), and USFWS monitoring protocols for animals (USFWS 2008). These references will assist DPR in developing monitoring methods at the preserve level, as well as the management directives that are identified for specific species in this document. When the Draft North County Plan is finalized, this RMP will be revised to include updated monitoring methodology.

Management Directive A.1—Conduct habitat monitoring to ensure MSCP goals and DPR objectives are met (Priority 1)

Implementation Measure A.1.1: DPR will conduct habitat monitoring on 5-year intervals within the Preserve including the three Ramona Airport Improvement Project mitigation areas, and annually for 5 years after a burn. Ongoing monitoring within the Preserve will identify any

adverse changes in vegetation community distribution and habitat quality, such as changes from fire, invasion by nonnatives, or decline of existing species, and indicate if modifications to current management actions are needed. More frequent monitoring may be required following a significant fire within the Preserve. The main product of this monitoring will be a report that will include a discussion of monitoring objectives, monitoring methods to meet those objectives, and an updated vegetation community map.

Implementation Measure A.1.2: DPR will conduct general wildlife and rare plant surveys within the Preserve including the three Ramona Airport Improvement Project wetland mitigation areas at 5-year intervals utilizing and refining baseline monitoring methods to assess trends, relative abundance, and distribution status. This information will be included in the monitoring report.

Implementation Measure A.1.3: DPR will conduct monitoring within the Preserve including the three Ramona Airport Improvement Project mitigation areas for invasive nonnative plant species at 5-year intervals to assess invasion or re-invasion by invasive nonnative plants within the Preserve. These surveys will focus on areas where invasive nonnative plants have been detected in the past, but also look for new occurrences in the Preserve. This information will be included in the monitoring report.

Management Directive A.2—Meet the corridor monitoring requirements of the MSCP (Priority 2)

The Preserve is part of the Ramona Grasslands Core and Linkage, which includes 7,396 acres including the Santa Maria Valley, east of the town of Ramona. The Core includes over 3,000 acres that have already been preserved and contributes to the formation of an important natural linkage from San Pasqual Valley to the north to southeast across SR-67 to the Barnett Ranch and Iron Mountain preserve areas. The Preserve, including the Santa Maria Creek and the crossing (six 10-foot-wide by approximately 5-foot-high box culverts) under Rangeland Road, serves as an important corridor for wildlife movement between these areas.

Implementation Measure A.2.1: DPR will conduct corridor monitoring at 5-year intervals in conjunction with habitat monitoring and general wildlife and rare plant surveys (as described in implementation measures A.1.1 and A.1.2). The scope of monitoring will be sufficient to determine if corridors are being utilized, but not to determine the extent of use (i.e., how many individuals of any given species use a corridor). The main product of this monitoring will be a report documenting the results of the current assessment of habitat linkage function including a list of focal species detected. Modifications to management actions will be included if it is determined the corridors are not allowing for movement of wildlife across the Preserve.

Management Directive A.3 – Prepare biological monitoring report (Priority 1)

Implementation Measure A.3.1: DPR will prepare a biological monitoring report that summarizes the monitoring goals, objectives, methodology, and results of the biological monitoring efforts described in implementation measures A.1.1 to A.1.3 and A.2.1. The report will also address the effectiveness of current stewardship and management actions, identify the need for corrective actions, and include recommendations for adaptive management.

5.2.2 MSCP Covered Species-Specific Monitoring and Management

Not all species occurring within the Preserve are expected to require species-specific management. It is expected, rather, that other management directives and implementation measures outlined under the Biological Resources and Vegetation Management elements should be sufficient to protect and manage optimal habitat conditions for most, if not all, species to maintain and/or thrive within the Preserve.

The Draft North County Plan provides habitat-specific management and monitoring guidelines that will benefit certain covered species for the following habitat types: riparian, marsh, and wet meadow habitat; coastal sage scrub, chaparral, and grassland habitat; oak woodlands and coniferous forest; and vernal pools. The Draft Framework RMP outlines the major factors that are a risk to these specific habitats and discusses management and monitoring to reduce the threats.

The top management issues at the Preserve include protecting the riparian and upland habitat along the Santa Maria Creek for water quality and sensitive species. This will include the removal of invasive, nonnative species including Tamarix, Arundo, crayfish, and bullfrogs. Another top management issue will be to maintain and enhance the viability of the Preserve's MSCP-covered resources (e.g., golden eagles, arroyo toad, Stephens' kangaroo rat, vernal pools, raptor foraging habitat, rare plants) in the context of the proposed trails.

Additionally the Draft North County Plan conservation analysis provides species-specific monitoring and management conditions for covered species that may need more specialized management directives. When the Draft North County Plan is finalized, this RMP will be revised to include updated monitoring methodology.

Specific monitoring types presented within the Draft Framework RMP include status, trend, and habitat monitoring. These terms are further defined below:

- Status monitoring is a species-specific monitoring type that determines if a population exists or persists at conserved sites.
- Trend monitoring is a species-specific monitoring type that includes the collection of annual or periodic abundance data to determine if conserved populations are increasing, stable, or declining.
- Habitat monitoring is a general monitoring type that focuses on determining changes in habitat as a result of natural events or the loss of habitat value as a result of edge effects or other human-related impacts.

Management Directive A.4—Provide for management and monitoring of Draft North County Plan and MSCP Subarea Plan covered species and County Group A and B plant species (Priority 1)

DPR will implement habitat-based and, in some cases, species-specific monitoring and management as outlined in the Draft Framework RMP and the conservation analysis of the Draft North County Plan for all North County Plan covered species detected within the Preserve. South County Plan covered species and County Group A and B plant species detected within the Preserve will also be monitored. For the South County Plan covered species detected within the Preserve, DPR will implement the

species-specific monitoring and management conditions as listed in Table 3-5 of the Plan and *San Diego Multiple Species Conservation Program Covered Prioritization* (Regan et al., 2006).

In order to avoid repetition, the following is a list of common risk/threats to South and North County Plan covered species found on the Preserve and the corresponding management directives or implementation measures to address these factors:

- **Invasive nonnative plants:** Implementation measure A.1.3 and management directives B.2 and B.3 discussed below
- **Invasive nonnative animals:** Multiple implementation measures under management directive A.5 discussed below
- **Wildfires:** Multiple implementation measures under management directive B.4 discussed below

Plants

Coulter's Saltbush (*Atriplex coulteri*)

MSCP Coverage: North County

Monitoring: Trend Monitoring (Medium Priority)

Monitoring efforts include habitat monitoring (as described in implementation measure A.1.1) and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.1: DPR will conduct surveys of the coulter's saltbush population within the Preserve to determine the number, size, variability, and health status (e.g., new vegetative growth, flowering). These surveys will be conducted at 5-year intervals in conjunction with the habitat monitoring and general rare plant surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Habitat Maintenance

Control invasive exotics as necessary based on monitoring.

Engelmann Oak (*Quercus engelmannii*)

MSCP Coverage: North County

Monitoring: Status Monitoring (Low Priority)

Monitoring efforts include habitat monitoring, general wildlife and rare plant (presence/absence) surveys, and invasive plant species surveys (as described in implementation measures A.1.1, A.1.2, and A.1.3).

Management: Habitat Maintenance

The occurrence of this species on the Preserve consists of a solitary tree; impacts on the individual tree will be avoided, and the habitat will be managed to reduce the threat of invasive nonnative plants and destruction by gold-spotted oak borer. Gold-spotted oak borer is addressed through implementation measure A.1.1. Monitoring of invasive nonnative plants is addressed through implementation measure A.1.3.

Parish's Britttlescale (*Atriplex parishii* var. *parishii*)

MSCP Coverage: North County

Monitoring: Trend Monitoring (High Priority)

Monitoring efforts include habitat monitoring (as described in implementation measures A.1.1) and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.2: DPR will conduct surveys of the Parish's britttlescale population within the Preserve to determine the number, size, variability, and health status (e.g., new vegetative growth, flowering) particularly in years of higher rainfall and local flooding when the species is more detectable. These surveys will also document the status of invasive species near Parish's britttlescale individuals, observed pollinators, and the condition of soils and evidence of soil disturbance, such as cracking and trampling by humans. These surveys will be conducted at 5-year intervals in years of higher rainfall in conjunction with the habitat monitoring and general rare plant surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Population/Habitat Maintenance/Enhancement

Use managed livestock grazing during the fall and early winter after rainfall to control invasive nonnative plants and reduce thatch in the alkali flats within the SE portion of the Preserve; remove grazing during periods of vernal pool inundation (varies based on rainfall) and native forb growth (April-October); and control invasive nonnative plants as necessary by other means based on monitoring (as described in implementation measure A.1.3).

San Diego thornmint (*Acanthomintha ilicifolia*)

MSCP Coverage: South County and North County

Monitoring: Trend Monitoring (High Priority)

San Diego thornmint will benefit from habitat-based monitoring within nonnative grassland habitat within the SE portion of the Preserve (as described in implementation measure A.1.1). In addition, species-specific monitoring will also benefit the species.

Species-specific implementation measures are discussed below.

Implementation Measure A.4.3: DPR will conduct surveys at 5-year intervals particularly in years of higher rainfall to determine the number, size, variability and health status (e.g., new vegetative growth, flowering) of the San Diego thornmint population within the Preserve.

Implementation Measure A.4.4: In addition to implementation measure A.1.3, DPR will specifically monitor for invasive nonnative plant species in the vicinity of the San Diego thornmint population within the SE portion of the Preserve.

Implementation Measure A.4.5: In addition to implementation measure A.1.2, DPR will specifically monitor the condition of soils and evidence of soil disturbance such as trampling/crushing by humans and cattle within the San Diego thornmint population area within the SE portion of the Preserve.

Management: Habitat Maintenance

San Diego thornmint will benefit from nonnative grassland habitat-based management actions. Managed livestock grazing will be utilized during the fall and early winter to control weedy exotics and reduce thatch; remove grazing during period of native forb growth (April–October); and control invasive nonnative plants as necessary by other means based on monitoring.

Southern Tarplant (*Centromadia parryi* var. *australis*)**MSCP Coverage:** North County**Monitoring:** Trend Monitoring (Medium Priority)

Monitoring efforts include habitat monitoring described in the implementation measure below.

Implementation Measure A.4.6: Every 1 to 2 years DPR will perform photo plot monitoring of patches of habitat where southern tarplant occurs as the dominant component.

Monitoring efforts will also include species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.7: DPR will conduct surveys of the southern tarplant population within the Preserve to determine the number, size, variability, and health status (e.g., new vegetative growth, flowering). These surveys will also document the condition of soils and evidence of soil disturbance, such as disking or trampling by cattle. These surveys will be conducted at 5-year intervals in conjunction with the habitat monitoring and general rare plant surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Population/Habitat Maintenance

The management approach for this species is maintenance of the population and suitable habitat (grasslands) within the Preserve and, if necessary, enhancement. Grassland habitat will be managed to reduce the threat of invasive nonnative plants.

California Large-leaf Filaree (*California macrophylla*)**Status:** San Diego County List B**Monitoring:** Trend Monitoring (High Priority)

Monitoring efforts include habitat monitoring (as described in implementation measure A.1.1) and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.8: DPR will conduct surveys of the California large-leaf filaree population within the Preserve to determine the number, size, variability, and health status (e.g., new vegetative growth, flowering, etc.) particularly in years of rainfall and local flooding when the species is more detectable. These surveys will also document the status of invasive nonnative plant species near California large-leaf filaree individuals, observed pollinators, and the condition of soils and evidence of soil disturbance, such as cracking and trampling by humans or cattle. These surveys will be conducted at 5-year intervals in years of higher rainfall in conjunction with the habitat monitoring and general rare plant surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Population/Habitat Maintenance

Control invasive nonnative plants as necessary based on monitoring (as described in implementation measure A.1.3).

San Diego Milkvetch (*Astragalus oocarpus*)**Status:** San Diego County List A**Monitoring:** Trend Monitoring (Medium Priority)

Monitoring efforts include habitat monitoring (as described in implementation measures A.1.1) and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.9: DPR will conduct surveys of the San Diego milkvetch population within the Preserve to determine the number, size, variability, and health status (e.g., new vegetative growth, flowering, etc.). These surveys will also document the status of invasive nonnative plant species near San Diego milkvetch individuals, observed pollinators, and the condition of soils and evidence of soil disturbance, such as trampling by humans or cattle overgrazing. These surveys will be conducted at 5-year intervals in conjunction with the habitat monitoring and general rare plant surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Population/Habitat Maintenance

This species occurs in proximity to Santa Maria Creek and could be impacted by riparian invasive nonnative plants and cattle use of the creek. Control invasive nonnative plants especially those that occur in or on the edges of riparian habitats (tamarisk, perennial pepperweed, castor bean, giant reed) as necessary.

Spreading Navarretia (*Navarretia fossalis*)**MSCP Coverage:** North County

Spreading navarretia was not observed on site during 2009 and 2010 surveys, but has been documented just east of the Preserve in 2005 (CNDDDB 2009), and suitable habitat for this species occurs throughout a large portion of the grassland habitats.

Implementation Measure A.4.10: DPR will conduct surveys within areas of the Preserve supporting vernal pools, including the two vernal pool mitigation areas associated with the Ramona Airport Improvement Project, during the blooming period of spreading navarretia (March–May). The surveys will be conducted at 5-year intervals in conjunction with the general rare plant surveys (as described in implementation measure A.1.2).

Delicate Clarkia (*Clarkia delicata*)**Status:** San Diego County List A

Delicate clarkia was not observed on site during 2009 surveys, but a high density population of the species are known to occur immediately west of the Preserve.

Implementation Measure A.4.11: DPR will conduct surveys within areas of the Preserve supporting oak woodlands during the blooming period of delicate clarkia (April–June). The surveys will be conducted at 5-year intervals in conjunction with the general rare plant surveys (as described in implementation measure A.1.2).

Invertebrates

San Diego Fairy Shrimp (*Branchinecta sandiegonensis*)

MSCP Coverage: South County and North County

Monitoring: *Trend Monitoring (High Priority)*

Monitoring efforts include habitat monitoring (as described in implementation measures A.1.1, A.1.2, and A.1.3) and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.12: Every 3–5 years, DPR will qualitatively survey vernal pools within the Preserve including the two vernal pool mitigation areas associated with the Ramona Airport Improvement Project for the presence of San Diego fairy shrimp. The surveys will be conducted in years of adequate rainfall when vernal pools have filled.

Management: Population/Habitat Maintenance

The management approach for this species is to maintain high quality habitat. Maintaining vernal pools and swales in their current state will require (1) continued grazing during the wet season after initial rains and annual plant recruitment but prior to vernal pool inundation to maintain hydroperiod by reducing vegetation density and thatch, (2) restrictions on pesticide use and sediment discharge in the vernal pool watershed to maintain high water quality, (3) avoidance by keeping public use trails away from vernal pool habitats, and (4) removal of invasive species from within vernal pools by hand and from around vernal pools by hand or mechanical means. Herbicides will only be used in specific instances when they will not affect vernal pools.

Herptiles

Arroyo Toad (*Anaxyrus californicus*)

MSCP Coverage: South County and North County

Monitoring: *Trend Monitoring (High Priority)*

Monitoring efforts include habitat monitoring (as described in implementation measure A.1.1), monitoring of nonnative invasive wildlife species (as described in implementation measure A.5.2 below), and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.13: Every 3–5 years, DPR will qualitatively survey Santa Maria Creek (including the Ramona Airport Improvement Project wetland mitigation parcel) for the presence of arroyo toad and determine the proportion of stream segments occupied.

Management: Population and Habitat Maintenance

The management approach for this species is to protect and manage suitable breeding (riparian areas and wetlands) and upland foraging and aestivation (grasslands and coastal sage scrub) habitat. The steps recommended to accomplish this are the following: (1) eradication of nonnative species, specifically bullfrog and swamp crayfish within Santa Maria Creek, (2) restoration of riparian vegetation on channel banks to slow flow and increase bank storage and groundwater recharge, and (3) maintenance of open channel bottom via natural scour patterns or with periodic grazing.

Belding's Orange-Throated Whiptail (*Aspidoscelis hyperythra beldingi*)

MSCP Coverage: South County and North County

Monitoring: Status Monitoring (Low Priority)

Orange-throated whiptail will benefit from habitat-based monitoring within coastal sage scrub, chaparral, and nonnative grassland habitat. Monitoring efforts will include habitat monitoring and general wildlife (presence/absence) surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Habitat Maintenance

The management approach for this species is maintenance of suitable habitat (coastal sage scrub, chaparral, and nonnative grasslands) within the Preserve. These habitats will be managed to reduce the threat of fire and invasive nonnative plants. Threats to this species include nonnative wildlife species including Argentine ants. No Argentine ants were observed within the Preserve, no landscaping on site is proposed, and trash receptacles will be provided to reduce the accumulation of litter and food waste.

Red Diamond Rattlesnake (*Crotalus ruber ruber*)

MSCP Coverage: North County

Monitoring: Status Monitoring (Low Priority)

Red-diamond rattlesnake will benefit from habitat-based monitoring within coastal sage scrub, chaparral, and nonnative grassland habitat. Monitoring efforts will include habitat monitoring and general wildlife (presence/absence) surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Habitat Maintenance

Red-diamond rattlesnake will benefit from coastal sage scrub, chaparral, and nonnative grassland habitat-based management actions.

San Diego Coast Horned Lizard (*Phrynosoma coronatum blainvillii*)

MSCP Coverage: South County and North County

Monitoring: Status Monitoring (Low Priority)

Coast horned lizard will benefit from habitat-based monitoring within coastal sage scrub, chaparral, and nonnative grassland habitat. Monitoring efforts will include habitat monitoring and general wildlife (presence/absence) surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Habitat Maintenance

Coast horned lizard will benefit from coastal sage scrub habitat-based management actions. Threats to this species include nonnative wildlife species such as Argentine ants. No Argentine ants were observed within the Preserve, no landscaping on site is proposed, and trash receptacles will be provided to reduce the accumulation of litter and food waste. The habitat will also be managed to reduce the threat of wildfires and edge effects.

Two-Striped Garter Snake (*Thamnophis hammondi hammondi*)

MSCP Coverage: North County

Monitoring: Status Monitoring (Low Priority)

Two-striped garter snake will benefit from habitat-based monitoring within riparian, marsh, and meadow habitat. Monitoring efforts will include habitat monitoring and general wildlife (presence/absence) surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Habitat Maintenance

The management approach for this species is maintenance of suitable habitat (riparian, marsh, and meadow) within the Preserve. These habitats will be managed to reduce the threat of fire and invasive nonnative plants.

Western Spadefoot Toad (*Spea [=Scaphiopus] hammondi*)

MSCP Coverage: North County

Monitoring: Status Monitoring (Low Priority)

Western spadefoot toad would benefit from habitat-based monitoring within riparian/vernal pool habitat. Monitoring efforts will include habitat monitoring and general wildlife (presence/absence) surveys (as described in implementation measures A.1.1 and A.1.2) and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.14: Every 3–5 years, in conjunction with San Diego fairy shrimp monitoring surveys, DPR qualitatively survey vernal pools for the presence of western spadefoot toads.

Management: Habitat Maintenance

The overarching management approach for this species is habitat maintenance.

Provide for restoration of riparian/vernal pool habitats to maintain/enhance the amount and quality of existing breeding and foraging/aestivation habitat (see implementation measures under management directive B.1 below). Manage for nonnative invasive wildlife species (as described in implementation measures A.5.1 through A.5.3 below).

Birds

Burrowing Owl (*Athene cunicularia*)

MSCP Coverage: South County and North County

Monitoring: Species Specific Monitoring (High Priority)

Burrowing owl will benefit from habitat-based monitoring within nonnative grassland habitat (as described in implementation measure A.1.1) and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.15: Every 3–5 years, DPR will qualitatively survey for burrowing owl noting the location and number.

Implementation Measure A.4.16: In the event burrowing owl nest sites are identified on the Preserve, DPR will monitor nest sites to determine nesting success and predator control.

Management: Population/Habitat Maintenance

The management approach for this species is enhancement of potential burrowing owl habitat and management for ground squirrels. This will be done by prohibiting poisoning of squirrels or other rodents in areas occupied by burrowing owl and installation of artificial burrows as needed. Measures to reduce nonnative invasive plants will also enhance burrowing owl habitat (as described under management directive B.2 below).

Cooper's Hawk (*Accipiter cooperii*)

MSCP Coverage: South County

Monitoring: Status Monitoring (Low Priority)

Monitoring efforts include habitat monitoring, general wildlife surveys, and monitoring for invasive plant species (as described in implementation measures A.1.1, A.1.2, and A.1.3).

Management: Table 3-5 Conditions & Habitat maintenance

The management approach for this species is maintenance of suitable foraging (upland and riparian habitats) and nesting habitat (oak woodland and riparian forest near water) within the Preserve. These habitats will be managed to reduce the threat of fire and invasive nonnative plants, and maintain hydrology. In addition, any potential impacts on Cooper's hawk from the proposed public access plan will be conditioned to avoid nests and minimize disturbance to oak woodlands, and riparian and eucalyptus forests present on site. A 300-foot impact avoidance area will be established around active nests and minimization of disturbance in oak woodlands, and riparian and eucalyptus forests.

A Copper's hawk nest was found in a eucalyptus grove located in the eastern edge of the SE portion of the Preserve. Breeding can be assumed in the oak woodlands within the SW and NE portions of the Preserve.

Golden Eagle (*Aquila chrysaetos*)

MSCP Coverage: South County and North County

Monitoring: North County Plan: Status Monitoring (High Priority)

South County Plan: Table 3-5 – Habitat Based and Management Plans/Directives (site-specific nest territories), SDSU – Risk Group 2

Golden eagle will benefit from habitat-based monitoring within coastal sage scrub, chaparral, and nonnative grassland habitat, specifically monitoring for relative cover of vegetation communities in both foraging and nesting habitats (as described in implementation measure A.1.1). Monitor for evidence of human disturbance of nesting areas as described in the implementation measures below:

Implementation Measure A.4.17: DPR will annually conduct qualitative surveys for golden eagle, noting the location and number of individuals.

Implementation Measure A.4.18: DPR will monitor trail use within the grasslands, including during peak use times. This data will be used to determine if and where seasonal closures of trails will be necessary to avoid impacts on golden eagles.

Implementation Measure A.4.19: DPR will provide information to nearby residents about the potential harm to golden eagles from the poisoning of ground squirrels and gophers.

Implementation Measure A.4.20: DPR will close and passively restore an existing trail that occurs within 0.5 mile of a known nest location in the NW portion of the Preserve to prevent human disturbance to potential golden eagle nesting.

Minimize indirect impacts to golden eagles as described in the implementation measures below:

Implementation Measure A.4.21: There will be on-going monitoring and adaptive management of the Preserve to facilitate docent-led tours, when appropriate, of Old Survey Road 97 in the NW portion. The County DPR or other entities responsible for regional monitoring will conduct annual surveys of known offsite nest locations to determine occupancy during the breeding period (December through June).

Implementation Measure A.4.22: DPR will place signage stating "Sensitive Habitat" to deter off-trail use along the trails in the NW portion of the Preserve.

Implementation Measure A.4.23: DPR will plant cactus thickets along the portions of the trail within the NW portion of the Preserve closest to the known off-site nesting location of golden eagles to deter off-trail use.

Management: Population/Public Awareness Campaign/ Habitat Maintenance/Species Specific

The USFWS issued recommendations for protecting the golden eagles within the Preserve in August 2010 (USFWS 2010). The recommendations included the following; (1) minimize disturbances to known golden eagle nesting territories, to the maximum extent practicable and avoid aligning trails within 0.5 miles of any nest site; (2) minimize disturbance activities within

golden eagle foraging habitat to the maximum extent possible by aligning trails along habitat edges and away from roosting and perching sites; and 3) regularly monitor nests to ensure trail activities are not impacting the eagles.

During the 2009 surveys, a pair of golden eagles was observed on numerous occasions throughout the season. No active nests were confirmed on site, but there is suitable habitat for breeding on the NW portion of the Preserve.

Golden eagles have been documented nesting on the steep cliffs of Bandy Canyon adjacent to the NW portion of the Preserve. There are two existing trails that occur north of the nesting location. The southernmost trail, closest to the nesting area, will be closed and passively restored. Restoration of this trail will discourage future use. The northernmost existing trail occurs approximately 0.5 mile north of the nesting area and will only be used for docent-led tours. Although this trail in sections comes just within 0.5 mile of the nesting site some topographical barriers exist. Bandy Canyon is a steep canyon with a large hill that occurs between the canyon and the northernmost trail. This visual barrier prevents Preserve users from seeing or being drawn to Bandy Canyon, or the nest site. Additionally DPR will increase ranger patrols to deter trespass and off-trail use near known nesting locations during golden eagle breeding season January 1 to July 31 (see Implementation Measure C.1.3).

A large percentage of the diet of golden eagles consists of mammals, including ground squirrels and gophers. The poisoning of ground squirrels by nearby private land owners has been shown to have detrimental impacts on the golden eagle and other raptors (WRI 2007). DPR will inform the public of the potential harm to golden eagles and other raptors by posting signage at the staging areas and mailing information to adjacent land owners.

Ferruginous Hawk (*Buteo regalis*)

MSCP Coverage: South County

Monitoring: Status Monitoring (Low Priority)

Ferruginous hawk will benefit from habitat-based monitoring within nonnative grassland habitat (as described in implementation measure A.1.1.) and the species-specific monitoring described in the implementation measures below.

Implementation Measure A.4.24: Every 5 years, DPR will qualitatively survey for ferruginous hawk noting the location and number.

Implementation Measure A.4.25: DPR will provide information to nearby residents about the potential harm to ferruginous hawk from the poisoning of ground squirrels and gophers.

Management: Habitat maintenance /Public Awareness Campaign

The presence of wintering ferruginous hawks at the Preserve is directly linked to the grasslands. Previous detection numbers vary from year to year and are partially based on food supply (WRI 2007). Food supply is correlated with weather, but also correlated with the overall condition of the grasslands. Ferruginous hawks will benefit from grassland habitat-based management actions including securing fences, trash removal, invasive nonnative plant control, and fire safety measures. These measures and actions are aimed at habitat stabilization.

The diet of ferruginous hawks largely consists of mammals, including ground squirrels and gophers. The poisoning of ground squirrels by nearby private land owners has been shown to have detrimental impacts on ferruginous hawks and other raptors (WRI 2007). DPR will inform the public of the potential harm to ferruginous hawks and other raptors by providing the information on the staging area kiosk and by sending mailers to the adjacent land owners.

Western bluebird (*Sialia mexicana*)

MSCP Coverage: South County

Monitoring: Status Monitoring (Low Priority)

Western bluebird would benefit from habitat-based monitoring within oak woodland habitat. Monitoring efforts will include habitat monitoring, general wildlife surveys (as described in implementation measures A.1.1 and A.1.2), as well as monitoring for European starling (see implementation measure A.5.2 below).

Management: Habitat Maintenance

Table 3-5 does not include any conditions for coverage of this species because its persistence in the County depends largely on conservation of existing large populations on public lands east of the South County Plan subarea. The management approach for this species is maintenance of suitable nesting (oak woodland and riparian forest) and foraging habitat (chaparral and grasslands) within the Preserve. These habitats will be managed to reduce the threat of fire and invasive nonnative plants.

Grasshopper Sparrow (*Ammodramus savannarum*)

MSCP Coverage: North County

Monitoring: Trend Monitoring (Low Priority)

Grasshopper sparrow will benefit from habitat-based monitoring within nonnative grassland habitat (as described in implementation measure A.1.1) and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.26: Every 5 years, DPR will qualitatively survey for grasshopper sparrow noting the location and number.

Management: Population/Habitat maintenance

Grasshopper sparrow will benefit from nonnative grassland habitat-based management actions including securing fences, trash removal, invasive nonnative plant control, and fire safety measures. These measures and actions are aimed at habitat stabilization.

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

MSCP Coverage: South County and North County

Monitoring: *Trend Monitoring (Medium Priority)*

Rufous-crowned sparrow will benefit from habitat-based monitoring within coastal sage scrub and chaparral habitat (as described in implementation measure A.1.1) and the species-specific monitoring described in the implementation measure below.

Implementation Measure A.4.27: Every 5 years, DPR will qualitatively survey for southern California rufous-crowned sparrow noting the location and number.

Management: Habitat Maintenance

Southern California rufous-crowned sparrow will benefit from coastal sage scrub and chaparral habitat-based management actions. Threats to this species include wildfires and invasive nonnative plant species. The habitat will be managed to reduce the threat of invasive nonnative plant species and wildfires.

Table 3-5 states ASMDs must include maintenance of dynamic processes, such as fire, to perpetuate some open phases of coastal sage scrub with herbaceous components. Diegan coastal sage scrub occurs in scattered patches throughout the Preserve, generally on northwestern-facing slopes. There are two large areas mapped as Diegan coastal sage scrub on the NE portion. These areas were burned in the 2007 Witch Fire and are slowly returning to a coastal sage scrub community. Open phases of coastal sage scrub are currently present within the Preserve.

Tricolored Blackbird (*Agelaius tricolor*)

MSCP Coverage: South County

Monitoring: *Status Monitoring (Medium Priority)*

Tricolored blackbird will benefit from habitat-based monitoring within riparian, marsh, and meadow habitat (as described in implementation measure A.1.1).

Management: Table 3-5 Conditions & Habitat Maintenance

Tricolored blackbird will benefit from riparian, marsh, and meadow habitat-based management actions including reducing the threat of edge effects.

A nesting colony is known to occur at the Ramona Water District ponds (Unitt 2004) which are adjacent to the Preserve. In 2009, a large flock (approximately 46 birds) was observed foraging on the SE portion of the Preserve.

Coastal California Gnatcatcher (*Poliophtila californica californica*)

MSCP Coverage: South County and North County

Coastal California gnatcatcher was not observed on site during 2009 surveys, but has been historically observed on the Preserve and adjacent to the Preserve.

Implementation Measure A.4.28: DPR will conduct surveys for coastal California gnatcatcher in conjunction with Implementation Measure A.1.2.

Mammals

Pallid Bat (*Antrozous pallidus*)

MSCP Coverage: North County

Monitoring: Status Monitoring (Low Priority)

Monitoring efforts include habitat monitoring and general wildlife (presence/absence) surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Habitat Maintenance

The management approach for this species is maintenance of foraging and roosting habitat (grasslands, shrublands, and oak woodlands) within the Preserve. These habitats will be managed to reduce the threat of fire and invasive nonnative plants.

Southern mule deer (*Odocoileus hemionus fuliginata*)

MSCP Coverage: South County

Monitoring: Status Monitoring (Low Priority)

Southern mule deer will benefit from habitat-based monitoring within chaparral, coastal sage scrub, nonnative grassland, oak woodland, and riparian woodland habitat (as described in implementation measure A.1.1).

Monitor wildlife corridors within the Preserve every 5 years using camera stations from the 2009 inventory surveys (as described in implementation measure A.2.1).

Management: Habitat Maintenance

This species would benefit from maintenance of wildlife corridors within the Preserve including chaparral, coastal sage scrub, nonnative grassland, oak woodland, and riparian woodland habitat. The habitat will be managed to reduce the threat of invasive nonnative plant species and wildfires.

Stephens' kangaroo rat (*Dipodomys stephensi*)

MSCP Coverage: North County

Monitoring: Trend Monitoring (High Priority)

Implementation Measure A.4.29: DPR will conduct annual surveys within the Preserve to calculate Residual Dry Matter (RDM) to determine if the grazing regime is adequately benefiting SKR or whether revisions to the regime or additional management methods (e.g., scraping, mowing, spraying herbicide, etc.) are warranted.

Implementation Measure A.4.30: Every 3 to 5 years, DPR will conduct semi-quantitative surveys in core habitat identified within the Preserve, Long Term SKR Management Area, and the Ramona Airport Improvement Project wetland mitigation area to determine abundance (density of SKR burrows) and habitat characteristics (e.g., percent bare ground and cover by forbs, grasses, and thatch).

Implementation Measure A.4.31: A survey to determine the distribution and relative density of SKR in the Long Term SKR Management Area in the SW Portion will initially be conducted each year during the late fall, after herbaceous vegetation has dried to the maximum annual extent, and prior to the commencement of winter rains (October–November and possibly into December if winter rains have not yet begun).

The entire Management Area will be walked by a qualified SKR biologist fully familiar with methods of mapping SKR habitat. Areas occupied by SKR will be mapped on an aerial map of approximately 1 inch = 200 feet scale. The relative density (e.g., trace, low, medium, high) of SKR in mapped occupied habitat will also be indicated, using the number of active kangaroo rat burrows to determine relative density. The number of occupied areas, with number of acres of each density category specified, will be summarized for each fall survey period.

A total count of active SKR burrows can also be used, in place of the more generalized mapping method by pin-flagging all active burrows and counting the number of pin flags after all burrows are marked. The density of burrows in the different sections of the management area will be mapped on an aerial.

After this initial monitoring period (3–5 years), SKR monitoring will occur in accordance with implementation measure A.4.30.

Implementation Measure A.4.32: Live-trapping, conducted by a permitted SKR biologist, to confirm the identity of the kangaroo rat species responsible for any observed kangaroo rat burrows should be conducted during the initial years of the monitoring surveys, to confirm that SKR are present in the management area. If SKR are confirmed as the resident species of kangaroo rat in the management area during the initial periods, trapping can be discontinued.

Implementation Measure A.4.33: DPR will specifically monitor for invasive nonnative plant species within Stephens' kangaroo rat habitat (as described in implementation measures A.1.3).

Management: Habitat Maintenance/Species Specific

The management approach for this species is focused on regulating the grazing intensity within identified core Stephens' kangaroo rat habitat within the Preserve and controlling invasive nonnative plants within identified core Stephens' kangaroo rat habitat.

The management of the Long Term SKR Management Area will be in accordance with the Biological Opinion for the Oak Country II trails project.

The Long Term SKR Management area will be maintained such that thick and/or structured vegetative cover (i.e., *Bromus* sp., *Avena* sp., *Brassica* sp., *Foeniculum* sp., shrubs) does not exceed 30 percent cover. The area will be enhanced and then maintained and managed as follows:

- a. Mowing of the 3-acre area will occur prior to the existing vegetation setting seed;
- b. All mowing will be done using a flail mower;

- c. All cut vegetation will be removed upon the completion of mowing;
- d. The area will be qualitatively assessed for vegetative cover twice per year, once in late winter/early spring and once in late spring/early summer. The number of mowing cycles required will be based on the amount of vegetation growth in a given year (i.e., years with high rainfall may require two mowing cycles and years with low rainfall may not require any mowing). At no time will the thick and/or structured vegetative cover (i.e., *Bromus* sp., *Avena* sp., mustard, fennel, shrubs) exceed the 30 percent cover limit;
- e. The County will submit an annual report to the USFWS' Carlsbad Fish and Wildlife Office and CDFG documenting all maintenance activities that were completed.

Following implementation of the RMP, maintenance of this 3-acre area may be done by mowing, as described above, by grazing if a grazing plan has been developed and approved for this area, or by other methods with written concurrence from USFWS and CDFG. It is expected the area will become self-maintaining once seed banks are controlled.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

MSCP Coverage: North County

Monitoring: Status Monitoring (Low Priority)

Monitoring efforts include habitat monitoring and general wildlife (presence/absence) surveys (as described in implementation measures A.1.1 and A.1.2).

Management: Habitat Maintenance

The management approach for this species is maintenance of foraging and roosting habitat (nonnative grasslands, shrublands, and oak woodlands) within the Preserve. These habitats will be managed to reduce the threat of fire and invasive nonnative plants.

5.2.3 Nonnative Invasive Wildlife Species Control

Management Directive A.5—Reduce, control, or where feasible eradicate invasive nonnative fauna known to be detrimental to native species and/or the local ecosystem (Priority 2)

Invasive nonnative species detected within the Preserve during the 2009 surveys included bullfrog, swamp crayfish, European starling, and brown-headed cowbirds. The abundance of adult bullfrogs found throughout the arroyo toad habitat within Santa Maria Creek poses a significant long-term threat to the persistence of this breeding population. Similarly, swamp crayfish have been documented to prey on arroyo toad tadpoles (Ramirez 2003) and pose a significant threat. European starlings were observed at six point count locations including locations in the grassland and within the Santa Maria Creek corridor in the NW portion of the Preserve. This species is a cavity nester and may displace native cavity nesters including western bluebird. However, it was detected in relatively low numbers and is not considered a significant threat. Four male brown-headed cowbirds were observed during the 2009 baseline surveys. However, these individuals were considered migrant and currently do not pose a significant threat to native wildlife on the Preserve.

Argentine ants (*Linepithema humile*) and goldspotted oak borer (*Agrilus coxalis*) were not observed on the Preserve, but will be monitored for because these invasive species can adversely impact plants and animal species.

Implementation Measure A.5.1: Control programs including an intensive eradication effort for swamp crayfish and bullfrogs will be implemented by DPR. Eradication efforts will focus on Santa Maria Creek, the pond in the southwest corner of the Preserve, and the treatment ponds on the adjacent RMWD property. DPR would need to seek approval from RMWD to access their property to remove the swamp crayfish and bullfrogs present within treatment ponds.

Implementation Measure A.5.2: DPR will conduct surveys within the Preserve including the Ramona Airport Improvement Project wetland mitigation area for the presence of invasive nonnative wildlife species of management concern, including brown-headed cowbirds, swamp crayfish, bullfrogs, European starling, Argentine ants, and goldspotted oak borer at 5-year intervals in conjunction with habitat monitoring and general wildlife surveys (as described in implementation measures A.1.1 and A.1.2) or more frequently as determined by DPR.

Implementation Measure A.5.3: If detrimental effects of these species are detected within the Preserve, preparation and implementation of a trapping and removal program, or other means of humane control, will be initiated.

Implementation Measure A.5.4: DPR will institute an equestrian education program regarding the potential negative impacts on native ecosystems from the accumulation of non-point source pollutants (e.g., increased potential for occurrence of cowbirds) and on frequently used trails. This could be accomplished through implementation of a signage program and interaction between rangers and trail users. See also implementation measure B.3.2 below.

Implementation Measure A.5.5: DPR will encourage the use of in-ground trash receptacles at the staging area in the NE portion of the Preserve to reduce the accumulation of litter and food waste to reduce the risk and extent of Argentine ant invasion.

Implementation Measure A.5.6: DPR will concentrate monitoring activities for Argentine ant where there is an interface with private residences that likely support irrigated landscaped areas adjacent to the Preserve.

5.2.4 Future Research

The MSCP preserve presents a rich array of research opportunities for the academic and professional communities, primarily in disciplines related to biology, ecology, and natural resources management, but also ranging to environmental design, sociology, and park use and administration. The County of San Diego encourages research within the MSCP preserve in order to gain valuable information unavailable through other means.

There are a multitude of unanswered questions posed by the development of a multiple species and habitat system where little literature or previous research exists on the majority of species inhabiting the region. In addition, research on vegetation associations and habitats, natural regeneration, restoration, fragmentation, edge effects, genetics, viability, predation, wildlife movement, and much more would be useful to provide information on the health and dynamics of an urbanized open space system as well as how to improve conditions.

Management Directive A.6—Allow for future research opportunities for the academic and professional scientific and biologic activities within the Preserve (Priority 2)

Implementation Measure A.6.1: DPR will accept and review proposals for scientific research, monitoring, and habitat restoration and enhancement activities that are permitted within the MSCP preserve. Proposed research activities will be subject to approval by DPR. All such activities must obtain any necessary permits and shall be consistent with this RMP. Additionally, any person conducting research of any kind within the Preserve shall obtain a Right-of-Entry Permit from DPR, which will outline the precautions to be taken to preserve and protect sensitive biological and cultural resources within the Preserve and require results of any research to be made available to DPR.

5.3 Vegetation Management Element (B)

In 2011 ICF prepared a Vegetation Management Plan (VMP) for the Preserve (ICF 2011; provided as Appendix C to this report) in addition to the baseline surveys. The Plan outlines invasive nonnative plant species management, habitat restoration, and fire management. These recommendations were used to develop the management directives and implementation measures provided below.

5.3.1 Habitat Restoration/Enhancement

Management Directive B.1—Restore degraded habitats to protect and enhance populations of rare and sensitive species through stabilization of eroded lands and strategic revegetation (Priority 1)

Implementation Measure B.1.1: DPR has assessed and determined there is a current need to close and passively restore the southern trail alignment within the NW portion of the Preserve. If determined to be necessary, vertical mulching, or another type of barrier, will be applied at the end points of the closed trails to prevent public access into trail restoration areas. Vertical mulching involves installing plants or dead and downed plant materials into the ground to discourage unwanted entry. Vertical mulching helps obscure the closed trails from use while barren.

Implementation Measure B.1.2: The future need for active restoration activities will be determined by DPR based on the results of habitat monitoring (as described in implementation measure A.1.1) and trail maintenance activities (as described in implementation measure C.5.4 below). Any future proposed active restoration activities would only occur following a landscape changing disturbance that removes, damages, degrades, or alters the desired native habitats and should utilize current, accepted techniques and avoid/minimize impacts on sensitive species or native habitats. Any proposed active revegetation activities should use only local native species. Passive restoration (recovery from fire) on site is ongoing.

Implementation Measure B.1.3: As stated in the VMP, DPR will close redundant trails and ranch roads located throughout the Preserve to allow for passive restoration (Figure 13). However, some existing ranch roads not designated for public access will remain in use as ranch roads.

Implementation Measure B.1.4: There is no current need for active vernal pool restoration. The need for future active restoration activities within the vernal pool basins will be determined

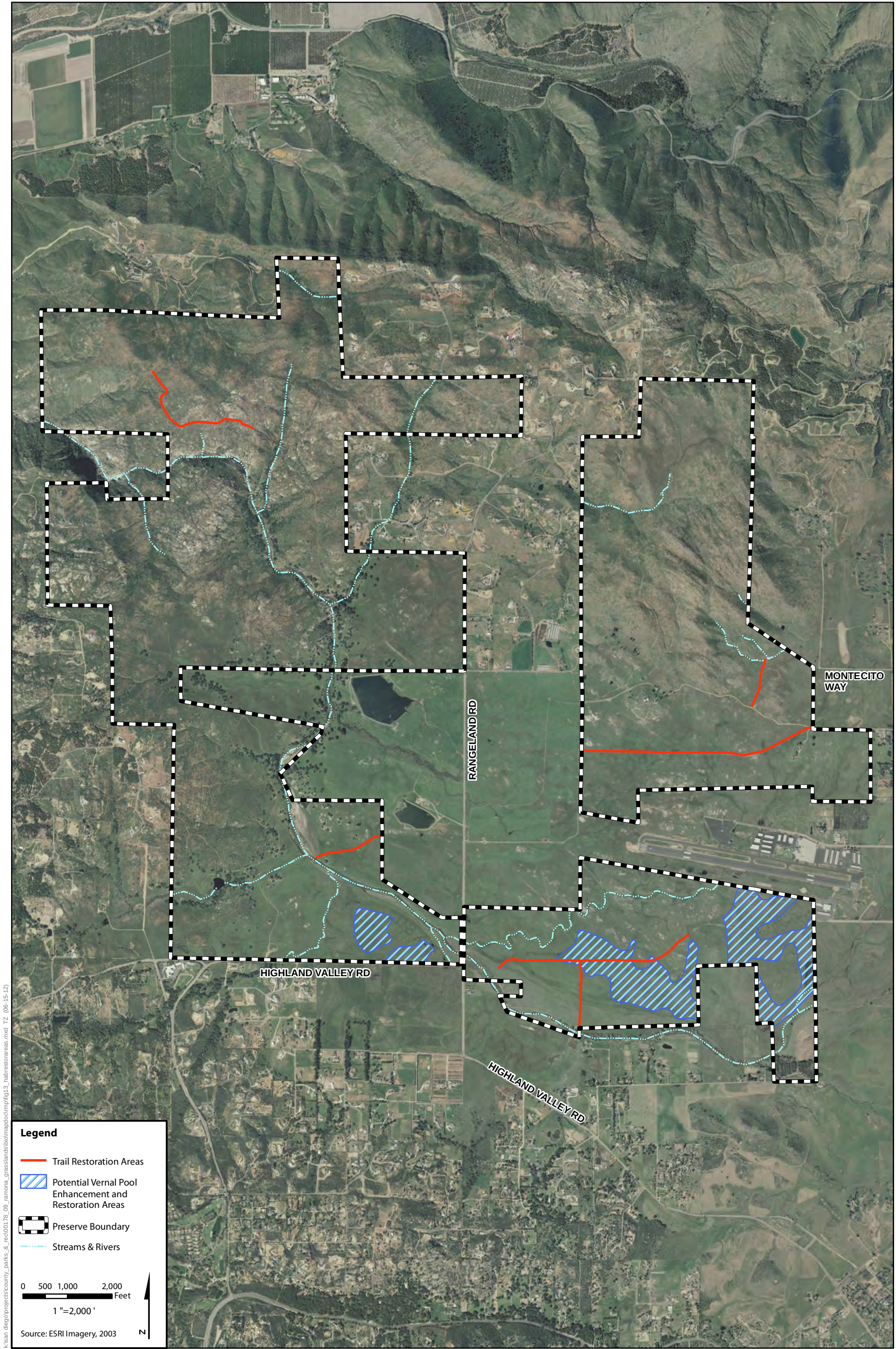


Figure 13
Habitat Restoration Areas
Ramona Grasslands

based on the results of habitat monitoring (implementation measures A.1.1 and D.9.2 [below]). At such time, a qualified biologist will make site-specific recommendations for seed species, composition, application rate, and timing and methods of seed application.

However, existing vernal pool basins on site that support appropriate soil conditions for active restoration (i.e., native plant species introductions) include the vernal pool system and the vernal swale in the SE portion of the Preserve (not including the TNC Vernal Pool Mitigation Parcel), on Placentia soils, and vernal pools on Bonsall and Bosanko clay soils elsewhere in the Preserve (CBI 2007) (Figure 13). Initially, vernal pools should be stabilized through a grazing management regime. If the vernal pools and vernal swale do not support target species once stressors have been minimized via grazing management, introduction of spreading navarretia (*Navarretia fossalis*), little mousetail (*Myosureus minimus*), and toothed downingia (*Downingia cuspidata*) should be considered (CBI 2004). Restoration of weed-infested pools may also involve salvaging vernal pool indicator species, solarizing the pools, and subsequently re-seeding/replanting with the salvaged material (CBI 2004).

Implementation Measure B.1.5: DPR staff will monitor nonnative species removal sites to ensure passive natural recruitment is successful. If passive natural recruitment is not found to be successful after 5 years, active restoration will be considered.

Implementation Measure B.1.6: DPR staff will monitor the presence of disease and pest levels in restoration/enhancement areas to determine and prescribe an active treatment, as appropriate.

5.3.2 Nonnative Plant Species removal and Control

Management Directive B.2—Reduce, control, or where feasible eradicate invasive nonnative flora known to be detrimental to native species and/or the local ecosystem (Priority 1)

As described in Section 3.2.4 above, native and naturalized plant species primarily dominate the vegetation communities within the Preserve. However, six invasive nonnative plant species including artichoke thistle, tamarisk, giant reed, perennial pepperweed, castor bean, and milk thistle have been identified as the principle target species with top priority for removal and have been previously identified or currently occur on the Preserve. DPR and TNC have been working since 2005 to eliminate these species on the Preserve through weed management programs. These plants were or are primarily found within the grassland and riparian communities on site. Details for control and elimination of target species on the Preserve are detailed in the Vegetation Management Plan (ICF 2011).

Implementation Measure B.2.1: DPR staff will perform annual (minimum) inspections of all Preserve areas where invasive nonnative plants have been identified. Although focused on the grasslands and Santa Maria Creek corridor, all areas of the Preserve where these species have been identified should be inspected. During routine patrols and inspections, when small patches or isolated individuals of invasive species are found, they will be removed immediately using hand tools or spot sprayed.

Implementation Measure B.2.2: DPR staff will continue to routinely pull weeds or remove any nonnative plant species in early stages of growth found along trails or other locations identified in the 2009 surveys. DPR will also coordinate with volunteer groups to do nonnative plant

species removal days at locations identified during invasive plant surveys and monitoring (as described in implementation measure A.1.3).

Implementation Measure B.2.3: DPR staff will focus invasive nonnative plant control and removal programs on the six target species (artichoke thistle, tamarisk, giant reed, perennial pepperweed, castor bean, and milk thistle) identified in the Vegetation Management Plan (ICF 2011).

Implementation Measure B.2.4: DPR will coordinate with other agencies, nonprofit organizations, and/or volunteer groups in order to seek funding and implement removal of artichoke thistle, tamarisk, giant reed, tocalote, or other invasive nonnative plants found during plant surveys and monitoring (as described in implementation measures A.1.2 and A.1.3) within the Preserve.

Implementation Measure B.2.5: Nonnative plant removal efforts will be monitored and conducted in such a way as to avoid impacts to federally or state listed species and County List A and B plant species, including San Diego thornmint, SKR, arroyo toad, San Diego fairy shrimp, and southern tarplant.

Management Directive B.3—Manage and minimize the expansion of invasive nonnative flora within the Preserve (Priority 2)

Implementation Measure B.3.1: DPR will implement an educational program for Preserve visitors and adjacent residents in order to discourage introduction of invasive nonnative plants into the Preserve. Information provided will include identification of invasive plants harmful to the Preserve and prevention methods. The program may also encourage residents to voluntarily remove invasive exotics from their landscaping. See also implementation measure D.7.1 below.

Implementation Measure B.3.2: DPR will implement an equestrian education program regarding the potential negative impacts on native ecosystems from the accumulation of non-point source pollutants (e.g., spread of nonnative seeds) on frequently used trails. This could be accomplished through a signage program/brochures and interaction between rangers and trail users. Specific signage could state, “Don’t Plant a Pest! Feeding horses weed-free feed for at least 72 hours prior to Preserve entry helps preserve our natural environment.”

5.3.3 Fire Prevention, Control, and Management

The Preserve is located in a wildfire-prone area and has been mapped by CAL FIRE as a “Very High Fire Severity Zone” for the upper elevation and “Moderate” and “High” for the lower elevations. The Vegetation Management Plan (ICF 2011) prepared for the Preserve outlines fuels reduction recommendations for vegetation habitats within the Preserve, management strategies to reduce the causes of fire, and post fire management.

Current fire management activities within the Preserve consist of active grazing.

Emergency access roads and evacuation routes are found within the Preserve in the form of existing utility and dirt ranch roads.

Management Directive B.4—Provide for necessary fire management activities that are sensitive to natural and cultural resources protection (Priority 1)

Implementation Measure B.4.1: DPR staff will maintain the existing dirt ranch roads/trails within the Preserve acting as access roads as needed to keep them fuel free. This may include thinning vegetation 1 foot along each side of the dirt roads/trails. All techniques implemented for fire control should leave (or replace) adequate vegetation cover to prevent surface erosion and shall avoid impacts to federally or state listed species and County List A and B species, including San Diego thornmint, SKR, arroyo toad, San Diego fairy shrimp, and southern tarplant.

Implementation B.4.2: DPR staff will mow a 0.5-acre area that supports low Stephens' kangaroo rat burrow density north of the east-west trail/ranch road adjacent to the RMWD property in the NE portion. Mowing will occur as necessary to keep nonnative grasses low to the ground. The east-west trail/ranch road will provide emergency access from Montecito Way to Rangeland Road.

Implementation Measure B.4.3: DPR staff will identify and remove any dead snags identified as a public hazard. Otherwise, snags will remain for wildlife purposes.

Implementation Measure B.4.4: DPR will continue to coordinate with CAL FIRE to ensure that the fire response and implementation measures outlined here and in the Vegetation Management Plan (ICF 2011) are up-to-date and adequate for effective fire response within the Preserve. As part of this effort, DPR will review fire history maps at least once every 10 years to determine if Preserve lands are within natural fire return intervals and for estimation of fuel age class. In addition, DPR will provide assistance to CAL FIRE regarding the natural and cultural values at risk during wildfires on or threatening the Preserve.

5.3.4 Grazing

The majority of the grasslands within the Preserve have been used for cattle grazing for many years. Within the past three (3) years grazing management recommendations in the current RMP for the Preserve has been implemented throughout the central and southern portions of the Preserve. As detailed in the Vegetation Management Plan (ICF 2011), a revised grazing plan has been developed for the entire Preserve. The managed grazing units are primarily designed to conserve the biological resources associated with the loamy grasslands, clayey grasslands, and the Santa Maria Creek corridor (riparian corridor). The delineation of grazing management units presented in the VMP was based on past studies within the Preserve that focused on the distribution and differential response to grazing with respect to various conservation targets (ICF 2011).

In order to effectively manage the grazing unit and grazing intensity within the Preserve an annual analysis of residual dry matter (RDM) will be conducted in the fall by DPR to determine the RDM values within each grazing management unit. DPR will utilize the results of the annual RDM monitoring to direct the cattle ranchers (currently Tellam's) who are leasing the Preserve for grazing to move their cattle accordingly.

Management Directive B.5—Implement grazing regime within the Preserve to maintain and enhance biological resources (Priority 1)

Implementation Measure B.5.1: DPR will annually monitor for RDM within the Preserve during the fall (October). DPR will coordinate with the cattle ranchers to appropriately time grazing

while maintaining the target residual dry matter levels established for each grazing management unit as stated in the Vegetation Management Plan (ICF 2011).

Implementation Measure B.5.2: DPR will annually coordinate with the cattle ranchers to exclude cattle grazing from the NW portion of the Preserve (Management Unit 4A) during the arroyo toad breeding season (defined as March 15–July 31). In addition, in the SW portion, cattle will not be allowed to graze in Management Unit 1A during the arroyo toad breeding season.

Implementation Measure B.5.3: DPR will close the gate to the DPW Vernal Pool Mitigation Parcel in the northeast corner of the SW portion of the Preserve once vernal pools are inundated to prevent trampling within the vernal pools.

5.4 Public Use, Trails, and Recreation Element (C)

5.4.1 Public Access

Public access is proposed within the Preserve and is detailed in the Public Access Plan (County 2010). This section outlines management directives related to public access within the Preserve.

Management Directive C.1—Limit types of public uses to those that are appropriate for the site (Priority 1)

Implementation Measure C.1.1: The following public uses are prohibited in the Preserve. DPR is responsible for enforcing these restrictions and may call the sheriff for legal enforcement, as appropriate.

- a. Off-road or cross-country vehicle and public off-highway recreational vehicle activity are considered incompatible uses in the MSCP preserve, and are therefore prohibited in the Preserve, except for law enforcement, Preserve management, utility maintenance, and/or emergency purposes.
- b. Hunting or discharge of firearms is an incompatible use in the MSCP preserve, and is therefore prohibited in the Preserve, except for law enforcement, and/or emergency purposes.
- c. Poaching or collecting plant or animal species, archaeological or historical artifacts or fossils from the Preserve is generally prohibited; however, the County may authorize collecting upon approval for scientific research, revegetation or restoration purposes, or species recovery programs. In addition, impacts on historic features are prohibited except upon approval by the County.
- d. Fishing, swimming, and wading in rivers, streams, or creeks.
- e. Camping (including homeless and itinerant worker camps).
- f. Feeding wildlife.
- g. Domestic animals, except cattle, horses, and leashed dogs.
- h. Smoking.
- i. Campfires/Open flames.

- j. Off-trail biking, equestrian use, or hiking.
- k. Littering.
- l. Graffiti.
- m. Paintball games.

Implementation Measure C.1.2: DPR staff will ensure that prohibited uses are clearly specified on kiosks, signage and/or trail maps.

Implementation Measure C.1.3: DPR will increase patrols to deter trespass and off-trail use near known nesting locations during golden eagle breeding season (January 1 to July 31).

Management Directive C.2—Manage public access in sensitive biological and cultural resource areas within the Preserve (Priority 1)

Implementation Measure C.2.1: Narrow endemics and critical populations, and all covered species populations in the Preserve have been identified and mapped so that these areas can be avoided and/or monitored. Updated information on sensitive species in relation to public access points will be obtained during general wildlife and rare plant surveys in conjunction with habitat monitoring (as described in implementation measures A.1.1 and A.1.2).

Implementation Measure C.2.2: DPR will provide sufficient signage to clearly identify public access to the Preserve when open to the public. Barriers such as vegetation, rocks/boulders or fencing may be necessary to protect highly sensitive areas. The appropriate types of barriers to be used will be determined based on location, setting, and use. Monitor new developments adjacent to the Preserve to enforce non-authorized trail use.

Implementation Measure C.2.3: DPR will monitor the number and types of trail users and identify peak usage times. Data will help determine if seasonal restrictions on public trail use should apply.

Management Directive C.3—Provide appropriate interpretive and educational materials (Priority 2)

Educational kiosks will be installed at the following locations within the Preserve: near the access point at the NW portion of the Preserve that occurs near Rangeland Road, within the staging area in the NE portion of the Preserve, at the proposed visitor kiosk/pavilion in the NE portion of the Preserve, at the trail marker along the northeastern boundary of the NE portion of the Preserve, and at the Oak Country II staging area.

Implementation Measure C.3.1: DPR will share outreach and educational information and notify the public of volunteer opportunities that advance the management, monitoring, and stewardship resources available, and objectives of this RMP. This information will be provided on the DPR website, www.sdparks.org.

Implementation Measure C.3.2: Educational trail-side signage and educational kiosks within the Preserve will include information on the following topics: North County Plan when finalized; sensitive biological and cultural resources within the Preserve; and the San Dieguito River watershed. In addition, signage provided at access points and on trails maps provides a form of education. See also implementation measures D.7.1 and E.3.1 below.

Implementation Measure C.3.3: When possible, DPR staff will organize and conduct interpretative walks or programs within the Preserve discussing biological and cultural resources. During these interpretative walks or programs, the “Living Close to Nature” brochure can be distributed to trail users. This brochure discusses how to live in harmony with wildlife. The interpretative walks and programs will be conducted in accordance with DPR staff availability.

5.4.2 Fencing and Gates

Fencing is currently located on the boundaries of the Preserve with the exception of segments in the southeast corner, areas north and south of Vista Del Otero in the Highland Valley residential community, and the majority of the northwest boundary (Figure 3).

Currently, perimeter gates utilized by DPR staff are located in the following area within the Preserve (Figure 3): (1) one gate north of Highland Valley Road on the southwestern boundary allowing access to the staging area; (2) gate north of Santa Maria Creek crossing east of Rangeland Road; (3) gate east of Rangeland Road west of the Ramona Airport to allow access to the trail across the NE portion to Montecito Way; (4) gate north of a dirt road north of RMWD property west of Rangeland Road allowing access to the NW portion; (5) one gate west of Montecito Way north of the Ramona Airport allowing access to the NE portion; and (6) one gate at the northern boundary of the NE portion of the Preserve.

Management Directive C.4—Install and maintain fencing and gates within the Preserve (Priority 1)

Implementation Measure C.4.1: DPR staff will maintain fencing of the Santa Maria Creek corridor in the SW and SE portions of the Preserve.

Implementation Measure C.4.2: DPR staff will install fencing and/or gates at points of unauthorized public access as needed. Points of unauthorized access will be identified in conjunction with trail monitoring activities (as described in implementation measure C.5.2 below).

Implementation Measure C.4.3: DPR staff will regularly inspect and maintain all fencing and gates within the Preserve. Fencing segments and gates will be repaired or replaced as necessary.

5.4.3 Trail and Access Road Maintenance

Management Directive C.5—Properly maintain trails for user safety, to protect natural and cultural resources, and to provide high-quality user experiences (Priority 1)

A trail system is proposed for the Preserve with two staging areas and trail access points. Trails and staging areas will be maintained by DPR staff. Some proposed trails will still act as ranch roads for vehicle access by cattle ranchers and may also serve as a public vehicular evacuation route in times of emergency. Otherwise, no public access roads are found within the Preserve.

Implementation Measure C.5.1: DPR will discourage Preserve users from using any redundant or unnecessary trails that currently exist on the Preserve by obstructing trail heads with brush, fencing, or rocks, etc.

Implementation Measure C.5.2: DPR will monitor trails for degradation and off-trail access and use, and provide necessary repair/maintenance per the Community Trails Master Plan (County of San Diego 2005b). See also implementation measures B.4.1 and B.4.3.

Implementation Measure C.5.3: If temporary closure of a trail is deemed necessary for maintenance or remediation, temporary closure actions will be accompanied by educational support, and public notification through signs and public meeting announcements. An implementation schedule will be written by DPR Operations staff when maintenance or remediation is deemed necessary.

The trail will be posted with signage that indicates temporary closure and the primary reason for the temporary closure (e.g., erosion issues, and sensitive biological resource impacts). Finally, signs should provide contact information for anyone wishing to provide input on trail use or gain additional information regarding temporary closure of trails.

Implementation Measure C.5.4: DPR will restore degraded habitats and reduce detrimental edge effects through maintenance and stabilization of trails and strategic revegetation. Measures to counter the effects of trail erosion may include the use of stone or wood cross-joints, edge plantings of native grasses, and mulching of the trail per the Community Trails Master Plan (County of San Diego 2005b) and approved Best Management Practices (BMPs). See also implementation measures B.1.1 and B.1.2.

Implementation Measure C.5.5: If unauthorized trail formation is observed by DPR staff, those specific areas will be posted with clear signage reminding the public to remain on authorized trails. Also see management directive C.6.

Implementation Measure C.5.6: DPR staff will monitor access roads, including the emergency access route in the NE portion of the Preserve, for degradation and will conduct maintenance/repair as necessary to allow for continued vehicular access.

Implementation Measure C.5.7: Trail maintenance activities will be conducted and monitored such that impacts on federally or state listed species and County List A and B plant species, including arroyo toad, San Diego fairy shrimp, and southern tarplant, are avoided.

Implementation Measure C.5.8: Prior to carrying out trail and access road maintenance activities in areas known to support SKR, a qualified SKR biologist should mark all occupied or potentially occupied kangaroo rat burrows. Marked burrows should then be avoided by a distance of no less than a 10–15 foot buffer around the burrow to encompass the entire underground portion of the burrow complex. Herbaceous vegetation from 5 feet to within a few inches of marked burrows can be removed with hand tools, as long as only the soil surface (i.e., the top 0.5–1 inch of soil) is disturbed. Shrubs can be removed by cutting at the base, using hand tools.

Implementation Measure C.5.9: Mechanical trail/access road maintenance shall not create 5 inch or higher berms.

Implementation Measure C.5.10: All piles of loose dirt will be covered prior to the end of each work day with tarps to assure that SKR do not burrow into the loose dirt, thus minimizing the potential for take of additional SKR.

Implementation Measure C.5.11: Trail/staging area construction and/or maintenance activities will be avoided during rainy periods when burrows may be more susceptible to collapse and impact from vehicular and foot traffic.

5.4.4 Signage and Lighting

No lighting is currently present at the Preserve, but safety lighting will be installed as necessary around the future Interpretive Center and Ranger Station and two volunteer pads within the NE portion of the Preserve. These safety lights will only turn on when human motion is detected.

Current posted signs at the NW, NE, and SE portions include the following rules and regulations: No Hunting County Code Sec. 41.112 and Wildlife, Plant, and Archaeological Features Protected County Code Sec. 41.111 and 41.113.

Current posted signs at the Oak Country II staging area include the following rules and regulations: Off-roading and ATV Vehicles Prohibited 41.130; Dogs on Leash At All Times 41.123(c); Weapons and Fireworks Prohibited 41.117; All Plants and Animals Are Protected 41.111 and 41.112; Campfire or Open Flames Prohibited 41.118; and Yield to Trail Users Obey Posted Speed Limit.

Management Directive C.6—Develop, install, and maintain appropriate signage to effectively communicate important information to Preserve visitors (Priority 1)

Signs educate, provide direction, and promote protection of sensitive resources and enjoyment of natural areas. Types of signs within the Preserve may include those necessary to: protect sensitive biological and cultural resources (see implementation measures A.5.4 and B.3.2); provide educational and interpretive information (see implementation measures C.3.2 and E.3.1); explain rules of the Preserve (see implementation measures C.1.1 and D.2.1); direct public access (see implementation measures C.2.2, C.5.5, and D.13.2); and provide Preserve operations information (see implementation measures A.5.4 and C.5.3).

Implementation Measure C.6.1: DPR staff will regularly inspect and maintain all posted signs within the Preserve in good condition. Signs shall be kept free from vandalism and will be repaired or replaced as necessary.

Implementation Measure C.6.2: Once the NW and NE portions of the Preserve are open to the public, additional signage to be posted at the staging areas and/or access points shall include the following rules and regulations: Off-roading and ATV Vehicles Prohibited 41.130 and 76.101(a), Weapons and Fireworks Prohibited 41.117, Campfire or Open Flames Prohibited 41.118, No Dumping, and Yield to Trail Users Obey Posted Speed Limit.

Implementation Measure C.6.3: “Trail Crossing” signage will be posted along the east and west sides of Rangeland Road 500 feet before the pedestrian crossing from the pathway along the western side of Rangeland Road to the trail connecting to the NE portion of the Preserve.

5.5 Operations and Facility Maintenance Element (D)

5.5.1 Litter/Trash and Material Storage

Management Directive D.1—Maintain a safe and healthy environment for Preserve users (Priority 1)

Implementation Measure D.1.1: DPR prohibits the permanent storage of hazardous and toxic materials within the Preserve. Any temporary storage will be in accordance with applicable regulations, and otherwise designed to minimize any potential impacts.

Management Directive D.2—Publicize and enforce regulations regarding littering/dumping (Priority 1)

Implementation Measure D.2.1: Lists of regulations will be provided to Preserve users (e.g., posted on kiosks) clearly stating that littering within the Preserve is illegal, and will provide appropriate DPR contacts to report any littering observed.

Implementation Measure D.2.2: Regulations regarding littering/dumping will be enforced by DPR (County Code of Regulatory Ordinance Section 41.116). Penalties for littering and dumping will be imposed by law enforcement officers sufficient to prevent recurrence and reimburse costs to remove and dispose of debris, restore the area if needed, and pay for additional DPR staff time. Areas where dumping recurs will be evaluated for potential barrier placement. Additional monitoring and enforcement will be provided as needed.

5.5.2 Hydrological Management

Native habitats in the MSCP preserve have evolved, in part, on the distribution and flow characteristics of water. MSCP preserve property should be managed to maintain existing natural drainages and watershed and to restore or minimize changes to natural hydrological processes. Proposed structures and activities should be evaluated for effects on hydraulics, and remedial actions should be taken as needed. BMPs should be used both within and outside the preserve system to maintain water quality.

The Santa Maria Creek and its tributaries drain from the mountains east of Ramona, across the Preserve (Figure 6), and through Bandy Canyon to its confluence with Santa Ysabel Creek. Below this confluence, the San Dieguito River flows into Hodges Reservoir. The Santa Maria Creek exhibits intermittent flow in response to winter rainfall, although surface flow in the creek may persist late in the summer during heavy rainfall years. Water is also perennial at the far western end of the valley. Several other unnamed tributaries to the Santa Maria Creek on the Preserve have been previously identified as potential stream courses (blue line) by USGS on the San Pasqual quadrangle (USGS 1983). All of the drainages mapped with the exception of Santa Maria Creek are ephemeral.

There is one perennial pond located in the southwest corner of the Preserve. This approximately 1.0-acre pond consists of an earthen dam with a culverted overflow, occurs within a tributary to Santa Maria Creek, and is surrounded by coast live oak riparian forest. Two other larger perennial ponds occur west of Rangeland Road on property maintained by the RMWD that is adjacent to the Preserve to the north, south, and west.

Per a Memorandum of Understanding (MOU) signed on November 8, 2005, between the County of San Diego DPR and Public Works, DPR is responsible for long-term management and monitoring of the Ramona Airport Improvement Project three mitigation properties including: TNC Vernal Pool Mitigation Parcel, TNC Wetland Mitigation Parcel, and Two Acre Subset of the Ramona Airport Property containing vernal pools. The MOU was executed to assign long-term monitoring and management of the mitigation properties to DPR. DPR's long-term monitoring and management of the three mitigation areas include, but are not limited to: biotic surveys, hydrologic monitoring, habitat maintenance such as invasive plant control, controlled burning and debris removal, fence and sign maintenance and repair, and annual reporting.

Management Directive D.3—Retain Santa Maria Creek in its natural condition (Priority 1)

Implementation Measure D.3.1: Maintain fencing along Santa Maria Creek corridor in the SW and SE portions of the Preserve to prevent livestock from entering the riparian area.

Implementation Measure D.3.2: Impacts on Santa Maria Creek resulting from the proposed dry-weather crossing in the NW portion of the Preserve shall be avoided or minimized to the maximum extent feasible.

Management Directive D.4—Monitor water quality and physical dimensions of Santa Maria Creek (Priority 2)

Implementation Measure D.4.1: Annually, or as dictated by rainfall and stream flow, DPR will monitor water quality upstream and downstream of the Preserve to determine the retention of water quality constituents. Collect samples at established monitoring stations shown in Figure 16 of the Ramona Grasslands Preserve Area Specific Management Directives (CBI 2007). Sampling frequency and methods are defined in the Santa Maria Creek Restoration Water Monitoring Quality Assurance Project Plan (City of San Diego Water Department 2004). Analyze samples for suspended solids, nutrients (nitrogen and phosphorus compounds), biological oxygen demand, metals, and bacteria (fecal coliforms, *Enterococcus*). At each monitoring event, collect standard field measurements (temperature, dissolved oxygen, pH, etc.) and, potentially, benthic macroinvertebrates (CDFG 2003).

Implementation Measure D.4.2: DPR will monitor changes in the morphology of the Santa Maria Creek channel by measuring the physical dimensions of the channel and substrate composition along a series of established cross-sections RT1-11 shown in Figure 16 of the Ramona Grasslands Preserve Area Specific Management Directives (CBI 2007). Channel geomorphology will be monitored at 5–10 year intervals, or following major flooding events.

Management Directive D.5—Monitor Santa Maria Creek box culvert under Rangeland Road (Priority 1)

Implementation Measure D.5.1: DPR staff will inspect the Santa Maria Creek culvert under Rangeland Road on a biannual basis to determine if there is build-up of sediment or flooding issues. DPW will be notified if there are issues with the culvert, and DPW will perform any required maintenance.

Management Directive D.6—Retain un-named tributaries to the Santa Maria Creek in their natural condition (Priority 2)

Implementation Measure D.6.1: No additional activities will be proposed adjacent to the un-named tributaries that exist in the SW and NW portions of the Preserve. Potential threats to jurisdictional waters from any activities including trail use shall be identified and impacts avoided or minimized to the maximum extent practicable.

Management Directive D.7—Provide watershed education to promote water quality and water sustainability (Priority 2)

Implementation Measure D.7.1: DPR will include watershed interpretive signs as part of the multi-use trail system that identifies Santa Maria Creek and explains its significance to the San Dieguito Watershed.

Management Directive D.8—Ensure the effectiveness of the existing earthen dam in the southwest portion of the Preserve (Priority 1)

Implementation Measure D.8.1: DPR staff will inspect the existing earthen dam located on the east side of the perennial pond in the SW portion of the Preserve during the wet season on a monthly basis until the dam is repaired in accordance with a funded project. Potential threats to downstream resources from dam failure shall be avoided or minimized to the extent practicable.

Management Directive D.9—Manage and monitor TNC Vernal Pool Mitigation Parcel and Two Acre Subset of the Ramona Airport Property Containing Vernal Pools C3w, C21a, C21, K3, R24, C20, K2, C2e, C3e, C19a, and R5 (Priority 1)

A stratified subsample of pools will be selected for monitoring; about 20% of the pools shall be contained in the subsample. The sample will contain a representation of all pool types based on size, depth, and species composition.

Implementation Measure D.9.1: Floral surveys for vernal pool species composition will be conducted by DPR at 5-year intervals in conjunction with the habitat monitoring and general plant surveys (as described in implementation measures A.1.1 and A.1.2). Surveys for spreading navarretia will be conducted within these mitigation areas per implementation measure A.4.10.

Implementation Measure D.9.2: Percent vegetative cover and vegetation community composition monitoring at the two vernal pool mitigation areas will be performed by DPR every 3–5 years based on rainfall. Monitoring will occur in conjunction with implementation measure A.1.1. Detailed survey protocols are provided in Appendix E.

Implementation Measure D.9.3: Hydrology will be quantitatively measured for the preservation, restoration, and control pools every 5 years by DPR, with adequate rainfall, by measuring maximum water depth. Qualitative monitoring will occur concurrently including measurements of dissolved oxygen levels and water temperature. Monitoring will occur in conjunction with implementation measure A.1.1. Detailed survey protocols are provided in Appendix E.

Implementation Measure D.9.4: Photo-monitoring will occur concurrently with implementation measure D.9.2 to monitor the habitat quality (hydrology, disturbance) and plant cover of the vernal pools in the two mitigation areas. Permanent photo-points will be established

at each vegetation transect location determined during the percent vegetative cover surveys under implementation measure D.9.2. Pools will be photographed twice a year from the same vantage point: when water first ponds or February 1, whichever comes first; and near the end of the drying phase.

Management Directive D.10—Manage and monitor TNC Wetland Mitigation Parcel (Priority 1)

Implementation Measure D.10.1: The percent vegetative cover and vegetation community composition (both upland and riparian) of the parcel will be determined by DPR every 3–5 years. Monitoring will occur in conjunction with implementation measure A.1.1. Detailed survey protocols are provided in Appendix E.

Implementation Measure D.10.2: Photo-documentation points will be established within the parcel and photo-monitoring will occur concurrently with implementation measure D.10.1 to monitor the vegetation cover and structure over time. Permanent photo-points will be established at each vegetation transect location determined during the percent vegetative cover surveys under implementation measure D.9.1.

Implementation Measure D.10.3: The physical dimensions of the Santa Maria Creek channel and substrate composition will be measured by DPR in the parcel every 3–5 years or after significant events, which may have altered the conditions on site (e.g., flooding, fire, etc.). An established cross-section (RT-11) has been delineated in the channel. Detailed survey protocols are provided in Appendix E.

5.5.3 Emergency, Safety and Police Services

The North County MSCP Framework Resource Management Plan explains that the interface between current and future urban development and MSCP preserve areas requires increased coordination between the preserve managers and agencies responsible for public safety. The MSCP preserve system, including Ramona Grasslands Preserve, must accommodate access for emergency response and fire control and management. In the event that entry into the Preserve by law enforcement agencies is needed in the routine performance of their duties, use of existing roads and trails should be encouraged. In emergencies where there is a direct threat to public safety, the law enforcement agency should contact DPR whenever feasible.

Law enforcement and fire control agencies, and organizations and agencies that respond to natural disasters shall be permitted to perform their activities within any preserve system subject to all applicable requirements of state and federal law.

Management Directive D.11—Maintain or increase the ability of emergency response personnel to deal with emergencies within the Preserve or vicinity (Priority 1)

Implementation Measure D.11.1: Law enforcement officials will be invited to access Preserve property as necessary to enforce the law. If it becomes apparent that extensive enforcement activities are necessary, DPR staff will coordinate with the applicable agencies to inform field personnel of how to minimize damage to particularly sensitive resources.

Implementation Measure D.11.2: All medical, rescue, and other emergency agencies will be allowed to access Preserve property to carry out operations necessary to protect the health,

safety, and welfare of the public. Access issues are further discussed in implementation measure B.4.4.

Management Directive D.12—Maintain emergency evacuation route for the public to use in the event of an emergency (Priority 1)

Implementation Measure D.12.1: Existing east-west trail/ranch road in the NE portion will be maintained by DPR to its existing condition and a 0.5-acre area will be mowed to provide access from Montecito Way to Rangeland Road, also refer to implementation measure B.4.2.

Implementation Measure D.12.2: Signage and other directional posts will be installed by DPR to direct emergency traffic across the mowed area associated with the emergency evacuation route.

Management Directive D.13—Provide for a safe recreational experience for Preserve visitors (Priority 1)

Implementation Measure D.13.1: In the event of a natural disaster, such as a fire or flood, DPR shall evacuate the Preserve and coordinate with the Emergency Operations Center. In addition, staff will coordinate with the local agency in charge of responding to the emergency and, if possible, assist where necessary.

Implementation Measure D.13.2: DPR will assess and address any public safety concerns within the Preserve through installation of fencing, signage, or any other suitable method as deemed necessary.

5.5.4 Adjacency Management Issues

As described in Section 2.4.2, there is currently private property on all sides of the Preserve including single-family residences, agricultural land, and undeveloped parcels. Additionally the Ramona Airport exists between the north and SE portions of the Preserve and RMWD property exists between the north and SW portions of the Preserve and on the western boundary of the north and SE portions. The establishment of the MSCP preserve system does not include regulatory authority on other properties adjacent to the Preserve; however, the County will require adjacent property owners to follow permitting conditions when planning and implementing uses and activities that can be regulated when located immediately adjacent to the site.

Two planned residential developments (Montecito Ranch-approved in 2010 and Cumming Ranch-approval in progress) are proposed northeast and southeast, respectively, of the Preserve. Both of these developments will include open space that will be adjacent to the Preserve. The open space will likely be managed by the County (and may be sold or donated to the County) and will be included in the Preserve boundaries in the future.

Management Directive D.14—Coordinate with adjacent land managers with large areas of undeveloped land (Priority 1)

Implementation Measure D.14.1: DPR will continue to coordinate with the RMWD and the Ramona Airport (in association with their contiguous open spaces) on an annual basis, or more regularly as needed to ensure contiguous preserved land is managed consistently and in accordance with the North County Plan.

Management Directive D.15—Coordinate with adjacent property owners with biological and open space easements and conserved lands (Priority 1)

Implementation Measure D.15.1: DPR will coordinate with adjacent property owner's with biological and open space easements and conserved lands to perform monitoring within these easements in conjunction with Preserve monitoring.

Management Directive D.16—Enforce Preserve boundaries (Priority 1)

Implementation Measure D.16.1: DPR will enforce, prevent, and remove illegal intrusions into the Preserve (e.g., orchards, decks) on an annual basis, in addition to a complaint basis.

Management Directive D.17—Educate residents of surrounding areas regarding adjacency issues (Priority 2)

Implementation Measure D.17.1: DPR will provide information on this RMP to residents adjacent to the Preserve to heighten environmental awareness, and inform residents of access, appropriate landscaping, construction or disturbance within the Preserve boundaries, pet intrusion, fire management, and other adjacency issues. This RMP will also be accessible on the DPR website and will thus be available to adjacent residents and to the general public.

5.6 Cultural Resources Element (E)

The goal of this section of the RMP is to provide measures for long-term preservation of cultural resources in the Preserve, opportunities for public interpretation, and opportunities for interaction with the Native American groups whose traditional territories encompass all or portions of the Preserve.

Management Directive E.1—Identify, record, and assess the significance of cultural resources within the Preserve in areas over 20 percent slope (Priority 2)

As noted in the cultural resources inventory report for the Preserve (Confidential Appendix B), a substantial portion of the Preserve exceeds 20 percent slope. Further, most of this terrain is densely vegetated, which hindered archaeological survey. Resources could exist in these unsurveyed areas. If future facilities—such as trails and staging areas—or other construction projects are proposed in these areas, significant adverse effects on these potentially significant unknown resources could occur.

Implementation Measure E.1.1: DPR will identify and record cultural resource sites in those areas of the Preserve where, if in the future, brush is removed as a result of wildfire or planned ground-disturbing activities including clearing, grubbing, or new trail development efforts. Any cultural materials collected from the Preserve will be curated at an appropriate County-approved curation facility. No removal or modification of cultural resources shall occur without written approval by the Director of DPR. In addition, a County-approved cultural resources consultant and Native American monitor will be on site during the survey of areas where planned ground-disturbing activities or brush removal will occur.

Management Directive E.2—Preserve and protect significant cultural resources to ensure that sites are available for appropriate uses by present and future generations (Priority 2)

Implementation Measure E.2.1: DPR will provide maps of sensitive cultural resources with sufficient buffer around them within the Preserve to the local fire agencies for inclusion in their wildland pre-response plans so that these resources can be avoided to the maximum extent possible.

Implementation Measure E.2.2: All management activities within the Preserve, including but not limited to, trail construction and maintenance, placement of fencing and gates, and active habitat restoration will take into consideration potential impacts on cultural resources and shall avoid adverse impacts on any cultural resources to the maximum extent possible. No ground-disturbing activities will be allowed on or in any cultural resource site within the Preserve until the impacts have been assessed. For those sites already evaluated and determined not significant, no further action is required. If avoidance of significant sites is not feasible, appropriate mitigation measures will be established and consultation with Native American tribes will occur. Removal or disturbance of cultural resources shall not occur prior to completion of an approved mitigation program, such as data recovery or capping. Preservation in place is the preferred mitigation measure.

Implementation Measure E.2.3: Park Rangers will enforce the protection of known cultural resources from vandalism and other forms of human impact in accordance with County of San Diego ordinances (Title 4; Public Property, Division 1; Parks and Beaches, Article 2, Section 41.113), and applicable state and federal laws. These signs will be maintained as described in implementation measure C.6.1. If a person(s) is suspected of vandalism to cultural resources, Park Rangers will notify the appropriate law enforcement authorities. If vandalism and damage continue or increase, DPR will coordinate with the appropriate authorities and local Native American tribal representatives to develop additional measures to protect cultural resources, as needed.

Implementation Measure E.2.4: The condition and status of cultural resources shall be noted as part of routine monitoring activities conducted at 5-year intervals (or on a more frequent basis as determined by DPR) and remedial measures shall be taken if damage is noted. Monitoring activities should also photo-document site conditions so that comparisons can be made over time. Monitoring efforts should focus on known significant resources, resources of recognized importance to local Native American groups, and resources at increased risk of disturbance or vandalism.

Because the Preserve contains such a large number of cultural resources, a list of resources that should be monitored is included in the confidential appendix of Appendix B. The table includes resources that are crossed by or are in proximity to (within 50 feet of) an existing or planned trail or trailhead. It is anticipated that these sites are at greatest risk from vandalism or inadvertent damage due to public use of the Preserve. Resources that fall within these areas that have been evaluated and found not to be significant are not included in the monitoring list. The list also does not include isolated artifacts. One resource, though not near a trail, was identified as a sensitive resource by Native American representatives, and is included on the list. This resource should be protected from visitation, perhaps by fencing along the portion of the trail closest to the site. The purpose would be to discourage visitors from leaving the trail in that area. Several resources,

though not located on the Preserve, are in proximity to trails planned for the Preserve. These are included at the bottom of the table.

As other resources are determined significant, either through future projects, consultation with Native American groups, or other means, they should be incorporated into the monitoring program. If resources on this list are evaluated and found to be not significant, they should be removed from the monitoring program.

Monitoring of the sites in the Preserve should follow the guidelines found in the County of San Diego Report Format and Content Requirements, Cultural Resources: Archaeological and Historical Resources (2007). All site location information will be kept strictly confidential, and will be available only for qualified cultural resource staff and land managers. Site locations will not be shown on maps or divulged to the public.

Management Directive E.3—Promote the beneficial uses of cultural resources through interpretation and educational programs (Priority 2)

Implementation Measure E.3.1: Offsite, and when possible, onsite interpretive programs for Native American heritage, local and regional history, and prehistory will be developed for the Preserve. These may include lectures, walks, kiosks, signs, historic brochures, and displays, but will not include excavations, collecting of artifacts, or disclosure of confidential site locations unless an interpretive plan is developed and approved by the Director of DPR. The plan will include supervision by a qualified archaeologist approved by the Director of DPR and Native American representatives. See also implementation measures C.3.1–C.3.3. As presented in the cultural resources inventory report (Confidential Appendix B), opportunities for public interpretation include the following:

- ***Pa'mu* Archaeological District** – Archaeological studies have determined that a series of prehistoric sites in the western portions of the Preserve are significant both as scientific resources and as traditional cultural properties of the Kumeyaay people. Ethnohistoric and historic research previously discussed has identified this as the *ranchería* of *Pa'mu*. Combined with the extensive ethnographic literature available, the opportunity exists to develop a *Pa'mu* Archaeological District under the Office of Historic Preservation. It is recommended that DPR, in consultation with representatives of the Native American community, prepare a District nomination as an element of this RMP. Once completed, the District nomination will function as a preservation tool and a foundation for public education and interpretation.
- **Kumeyaay Place Names** – Ethnographic research has identified the native names for many local geographic features or locales (Confidential Appendix B). DPR has the opportunity to integrate this information into scenic viewpoint signage that may be created in the Preserve. In addition, this information could be an element of an Interpretive Center. Consultation with Native American representatives is recommended to develop this opportunity further.
- **Kumeyaay Lifeways** – Similar to the proposed usage of Kumeyaay place names, DPR has the opportunity to educate the public about the traditional lifestyle of native peoples prior to the arrival of the Spanish. Trail systems could include signage that identifies natural plant and animal resources by their Kumeyaay name and descriptions of their traditional usage. Other aspects of their subsistence system such as specialized procurement/processing areas could be described as they relate to the settlement patterns practiced by the Kumeyaay. With input

from the Native American community, DPR has an opportunity to create an exceptional interpretive program for the public benefit. This would also provide a link with important biological and botanical resources in the Preserve.

- **Spanish Raid on *Pa'mu*** – Another major opportunity for public interpretation revolves around the alleged conspiracy fomented by the *rancheria* of *Pa'mu* and the pre-emptive military strike by the Spanish to defuse the immediate situation. Research presented in this study documents the events and persons involved, but far more could be included in a public interpretation program. One possibility is to have one or more strategic lookout points where visual simulations could re-create what *Pa'mu* might have looked like on the eve of the attack. Interpretative signage at the viewpoints could present the unfolding of events through actual or fictionalized Spanish and Kumeyaay voices that would bring more immediacy to this clash of cultures. It is recommended that DPR partner with Kumeyaay representatives to develop this interpretive program.
- **Transportation Routes** – A major theme that recurs during the early part of the American period in the Preserve is transportation. As documented in this report, a number of stagecoach and wagon routes criss-crossed the Preserve (Confidential Appendix B). Early entrepreneurs including members of the Stokes family, the Etcheverry interests, Milton Santee and the Santa Maria Land and Water Company, and others developed or improved some of these routes, and the stories associated with these individuals and their operations provide interesting insights into the life and times of these early pioneers. In some cases, these could be routes that visitors to the Preserve might see or even use as they follow existing or newly developed trails.
- **Ranching** – A second theme that is pertinent to the Preserve is ranching. In modern times, this has focused on cattle ranching, but in the past other forms of ranching were practiced in and around the Preserve. DPR has an opportunity to take a slightly larger view of the Ramona area ranching history to discuss sheepherding, dairy farming, and turkey ranching as influences on the development of the region.
- **World War II Training Facility** – One of the previously recorded sites in the Preserve is a practice bombing range adjacent to the current Ramona airport. Indeed, it is not generally known that this airport had its origin as a training facility for naval pilots during the Second World War. Cobbles were brought in, painted white, and arranged in concentric circles to simulate the form of an aircraft carrier to serve as a target for 100-pound or smaller practice bombs (USACE 1998). DPR has the opportunity to create a viewpoint overlooking the practice bombing range area that would serve to educate the public and preserve this otherwise obscure part of the local history.

Management Directive E.4—Honor Native American Heritage and promote Native American ceremonies, gathering, and cultural practices (Priority 2)

Implementation Measure E.4.1: DPR will continue to coordinate and consult with local tribes in order to keep them informed of activities associated with the Preserve. Consultation shall be conducted frequently in order to identify appropriate management of pre-contact and ethnographic cultural resources. The tribes will be encouraged to participate in evaluation, grading and brush monitoring, recordation, protection and preservation of cultural resources.

Implementation Measure E.4.2: The County will open the Preserve to traditional uses by local Native American groups. All activities by Native Americans in the Preserve shall be conducted with a Right-of-Entry permit specifically designed for the Preserve.

Management Directive E.5—Develop and implement proper protocols in the event that Native American human remains are found during grading, brush removal, or other construction and maintenance activities (Priority 1)

Human remains require special handling and must be treated with appropriate dignity. Specific actions must take place pursuant to CEQA Guidelines Section 15064.5e, Public Resources Code (PRC) Section 5097.98, and Section 87.429 of the County of San Diego Grading, Clearing and Watercourses Ordinance.

Implementation Measure E.5.1: In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, DPR will ensure that the following procedures are followed:

1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - a. A County (DPR) official is contacted.
 - b. The County Coroner is contacted to determine that no investigation of the cause of death is required.
 - c. If the Coroner determines the remains are Native American, then:
 - i. The coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours.
 - ii. The NAHC shall identify the person or persons it believes to be most likely descended from the deceased Native American.
 - iii. The Most Likely Descendent (MLD) may make recommendations to the landowner (DPR), or the person responsible for the excavation work, for the treatment of human remains and any associated grave goods as provided in PRC Section 5097.98.
2. Under the following conditions, the landowner or its authorized representative shall rebury the Native American human remains and associated grave goods on the property in a location not subject to further disturbance:
 - a. The NAHC is unable to identify a MLD or the MLD fails to make a recommendation within 24 hours after being notified by the NAHC.
 - b. The MLD fails to make a recommendation.
 - c. The landowner or his authorized representative rejects the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner.
3. Any time human remains are encountered or suspected and soil conditions are appropriate for the technique, ground penetrating radar (GPR) will be used as part of the survey methodology. In addition, the use of canine forensics will be considered when searching for human remains. The decision to use GPR or canine forensics will be made on a case-by-case basis through consultation among the County Archaeologist, the project archaeologist, and the Native American monitor.

4. Because human remains require special consideration and handling, they must be defined in a broad sense. For the purposes of this document, human remains are defined as:
 - a. Cremations, including the soil surrounding the deposit.
 - b. Interments, including the soils surrounding the deposit.
 - c. Associated grave goods.

In consultation among the County archaeologist, project archaeologist, and Native American monitor, additional measures (e.g., wet-screening of soils adjacent to the deposit or on site) may be required to determine the extent of the burial.

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Chapter 6

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